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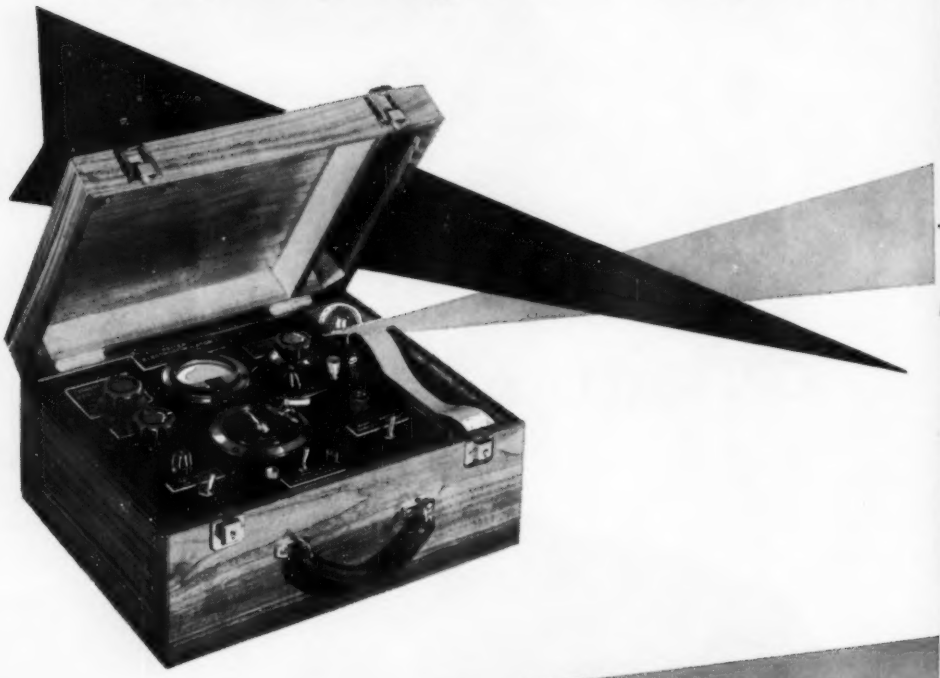

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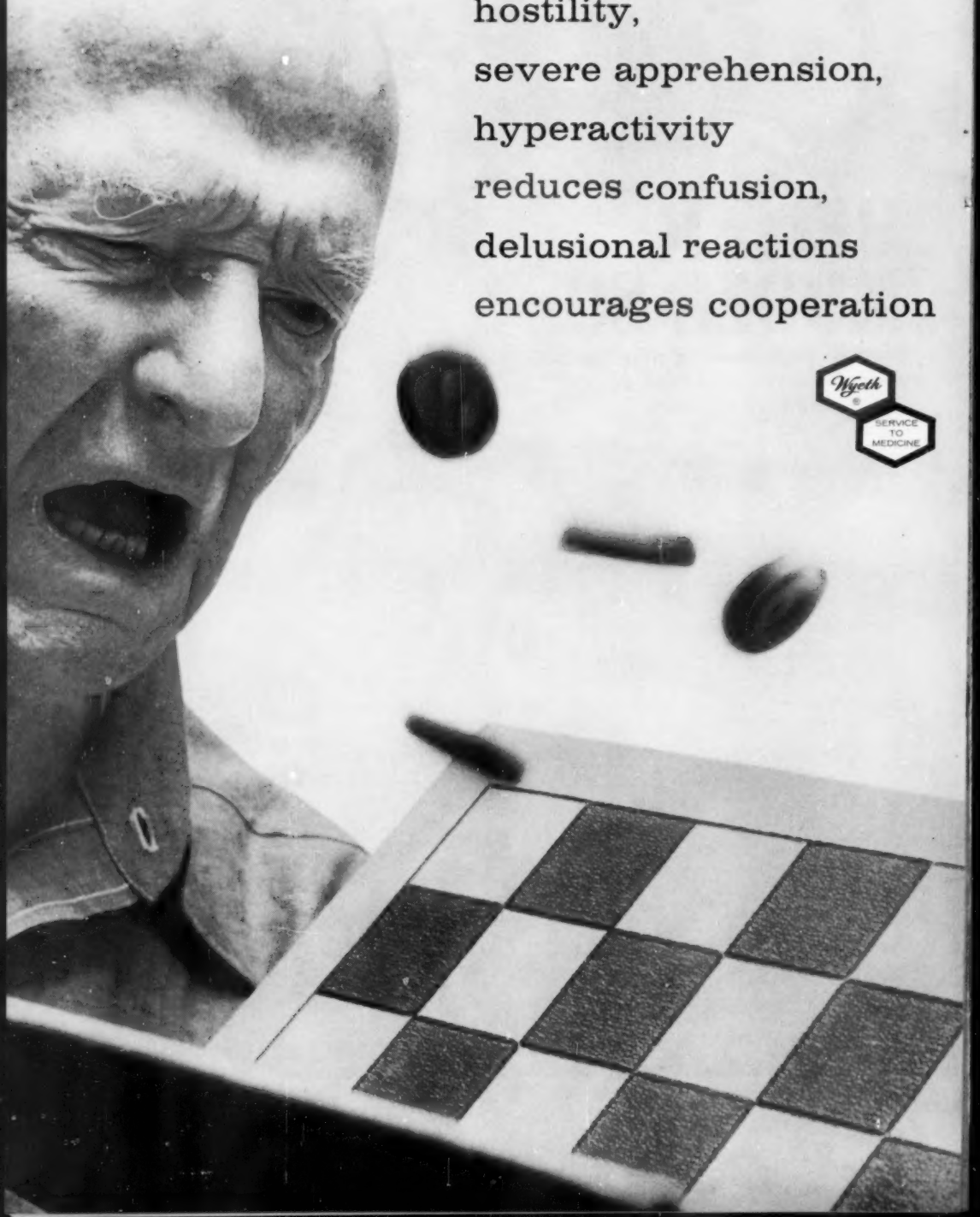

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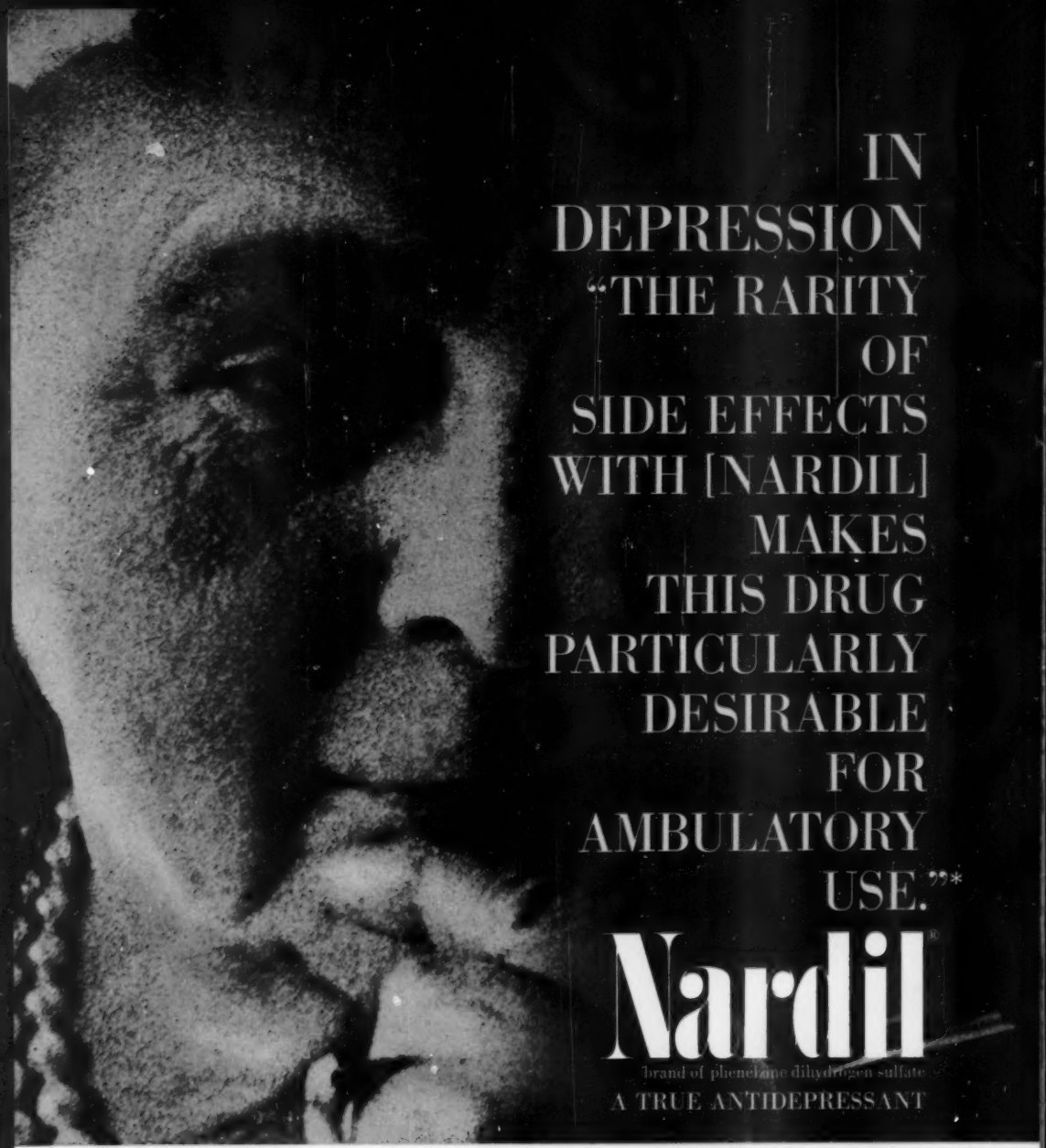

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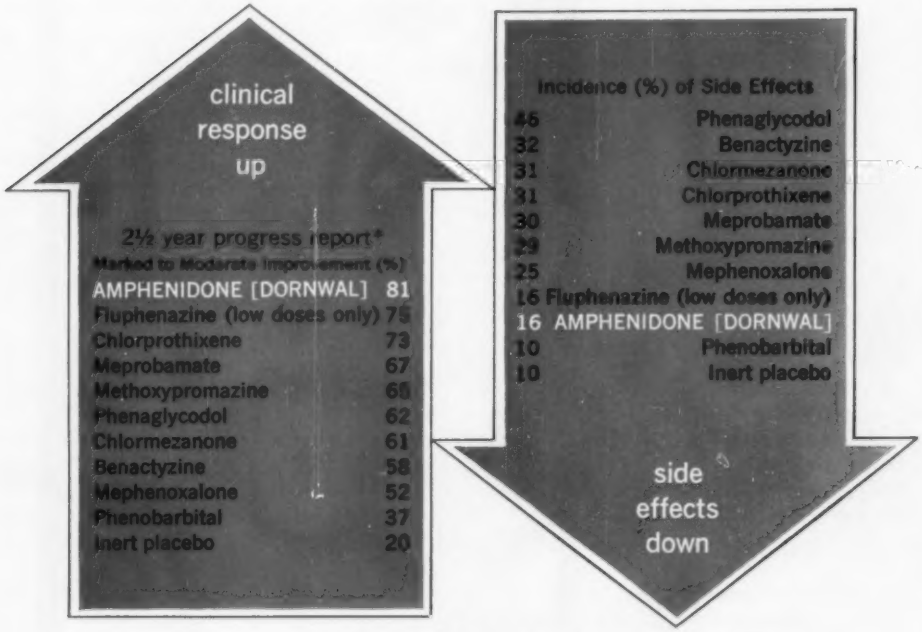

Indications: Anxiety and tension states, tension headaches, pre- and post-operative apprehension, anxiety coexistent with gastrointestinal, dermatologic, gynecologic, cardiovascular and other functional or organic disorders, behavior disorders in children associated with anxiety and tension.

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*Nodine, J. H.; Bodi, T.; Slap, J.; Levy, H. A., and Siegler, P. E.: Human bioassay of tranquilizers in psychosomatic disorders, Scientific Exhibit, American Medical Association Annual Meeting, Miami Beach, Florida, June 13-17, 1960.

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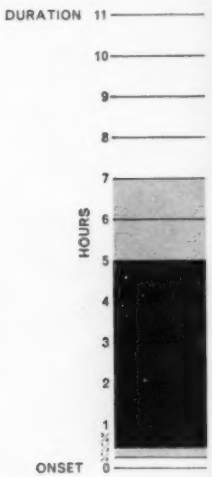

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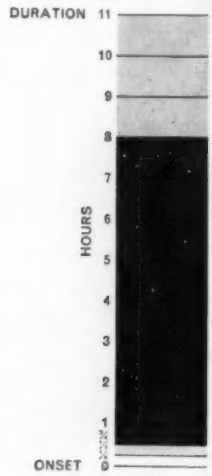
for rapid sedation with prolonged effect



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REVIEW OF PSYCHIATRIC PROGRESS 1960

HEREDITY AND EUGENICS

FRANZ J. KALLMANN, M.D.[1]

Productivity in the gradually merging branches of cystological, microbial and biochemical genetics was characterized by judicious consolidation, technical realignment and selective expansion during the past year. With the consequent increase in the number of interdisciplinary research meetings and specialized genetic symposia came an equally sharp rise in the output of expertly edited conference proceedings, timely reviews and promising new research reports.

Published symposia covered a whole galaxy of topics, including cell culture and biochemical genetics(1, 25, 61, 71), the structure and functions of the cell and cell nucleus(4, 21, 40), the cellular aspects of immunity(72) and tissue homotransplantation(69), the genetics of cancer(57), aging (60) and congenital malformations(73), and the evolutionary, molecular and neurophysiological phenomena of behavior genetics(5, 19, 31, 63, 65, 66, 67). *Still unpublished* at the time of writing this review were the A.A.A.S. and A.P.P.A. symposia on the genetics of aging (Chicago, December 29 and New York, February 20), the latter with the reviewer's Samuel W. Hamilton lecture; the symposia of the American Eugenics Society on human twinning (Princeton, April 28-29), that of the Eastern Psychiatric Research Association on psychiatric correlates of enzymatic and hormonal disturbances (New York, November 5), and that of the New York Academy of Sciences on genetic perspectives in disease resistance and susceptibility (New York, November 17-18); also the general genetic symposia at the University of Utah (Salt Lake City, May 13-14), Western Reserve University (Cleveland, October 10-12), the Mayo Clinic (Rochester, October 12), and the Kaiser Foundation Hospitals (San Francisco, October 14-15). An experimental teaching session in molecular and chromosomal genetics conducted jointly by A. Bendich and this reviewer was a special feature of the APA meeting at Atlantic City.

Worldwide cooperation in the rapidly moving field of cytogenetics was effectively promoted by an international conference held at the University of Colorado in April (2). By introducing a unified system for numbering the 46 human chromosomes, the so-called *Denver System*, the conference cleared up the terminological smog emitted by widely disparate classification methods.

In the group of cytogenetically identified *abnormalities in sexual development* due to the loss or addition of a sex chromosome, appreciable progress was made in extending the analysis of chromosomal disarrangements beyond the previously established triad of Klinefelter's syndrome (chromatin-positive males with testicular dysgenesis and an XXY-sex chromosome pattern), superfemaleness (sexually underdeveloped females with two sex-chromatin patches and three X-chromosomes) and Turner's syndrome (chromatin-negative "females" with ovarian agenesis and only 45 chromosomes including one X-chromosome). Ferguson-Smith's team(14) and Muldal and Ockey (41) described special Klinefelter variants with XXXY- and XXYY-sex chromosome complements, respectively, and Lanman, *et al.*(36) reported another case with 48 chromosomes (trisomy of a small autosome and an extra X-chromosome) that showed the symptoms of both mongolism and Klinefelter's syndrome. While the XXXY "males" with two sex-chromatin bodies were found to be grossly defective (IQ below 20), association of Turner's syndrome with mental

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deficiency was observed by Fraser, *et al.* (17) in no more than 0.7% of mental defectives. Other informative reports included the history of a young girl with hemophilia who was classified as an XY-intersex, that is, a male who presumably underwent a process of sex reversal(44), and the case of a hermaphrodite who had a supernumerary chromosomal fragment in addition to a normal karyotype of 46 chromosomes including two X-chromosomes(13).

The cytogenetic classification of *mongolism* (trisomy of chromosome 21) was complicated by the observation that mongoloid symptoms may in some instances arise from reciprocal translocation between two of the smaller autosomes(15, 49, 50). In one case, a translocation seemed to have occurred between chromosomes 15 and 21. In another case, the apparently healthy father of a mongoloid boy had 47 chromosomes with trisomy of chromosome 19, or its equivalent in the Denver System, while the mongoloid patient was found to have a complement of 46 chromosomes with a translocation between two chromosomes 21. The same kind of translocation was observed in the family of an English woman who had three mongoloid grandsons, two brothers and their maternal cousin(6).

Reports on other types of *autosomal trisomy* in persons with multiple developmental defects (including Sturge-Weber's syndrome) also appeared in increasing numbers. Noteworthy in this category were the chromosomal disarrangements placed on record by Edwards, *et al.*(9), Patau, *et al.*(47), Hayward and Bower(30) and Sandberg, *et al.*(53). Even more remarkable were two Swedish cases with complements of 49 and 69 chromosomes, respectively(3, 16). Perhaps the most spectacular observation with far-reaching clinical implications was the detection by Tough, *et al.*(68) of extensive chromosome damage in two male patients who had received X-ray treatment for ankylosing spondylitis ("single dose of 250 rads limited to the skin over the spinal column").

While the output of *specialized textbooks* embodying these most recent advances in medical genetics lagged behind, commendable exceptions were new books on biochemical and radiation genetics by Harris (29), Strauss(59), and Wallace and Dobzhansky(70), a German book by Lenz(38), a new edition of Stern's standard textbook on human genetics(58), and a concise introductory book for the general public by Penrose(48), despite its skeptical attitude toward the usefulness of twin studies. Introductions to quantitative genetics were contributed by Falconer(12) and Osborne and DeGeorge(46), and to behavior genetics by Fuller and Thompson(20). Provocative views about the influence of evolution and heredity on progress and survival in the current world scene were expressed by Hardin(28) in an absorbing book and by Muller(42), Simpson(54) and Wright (74) in some equally intriguing articles.

Prospects for the uphill struggle of *experimental genetics* to bridge the molecular and cellular levels of organization were scrutinized by Lederberg(37) in his Nobel Prize address from the standpoint of bacterial genetics, and by Ehret(10) on the basis of electron microscope studies. Promising steps toward the overall objective of genetic research—the mapping of human chromosomes through a full understanding of the biological activity of DNA—were taken by Sidman(64) with a highly refined organ culture technique (retinal dystrophy in mice), as well as by Bendich(64) through ingenious observations on biochemical changes which were seen on invasion of cultured human (HeLa) cells by extraneous DNA, either microbial or human (isotopically labeled DNA from human leukocytes and transforming DNA from pneumococcus). At the cellular level, variations in native resistance to certain infections (*i.e.*, pulmonary tuberculosis) were confirmed by the experimental work of Lurie(39) in rabbits as being determined by the activity pattern of reticuloendothelial cells.

In the sectors of *clinical genetics* bearing on psychiatric problems, the crop of research data which ripened to the point of publication was rather sparse last year. There were three investigations apiece dealing with Huntington's chorea(7, 43, 45) and phenylketonuria(22, 32, 51) and two serial studies of relatives of epileptics, one by Inouye(33) in Japan (families of 40 epileptic twin index cases) and the other

by Eisner and Livingstone(11) in this country (3,361 relatives of 669 epileptics). While the search for the primary biochemical defect in Huntington's chorea remained as inconclusive as that for readily identifiable chromosomal markers in phenylketonuria, the two epilepsy studies confirmed the operation of some genetic factor (biochemically unidentified) in certan "chronic" forms of the disease, especially in cases with a disease onset before the age of 16.

Other research reports dealt with the anthropometric characteristics of 44 young "war mulattoes" born out of wedlock to white Italian women during the occupation years(23); an Australian family with 11 cases of an apparently autosomal, dominant form of acute intermittent porphyria in three generations(8); a Swedish series of 119 same-sexed twin pairs with nocturnal enuresis in one or both partners, showing higher prevalence rates (a) for twins than for nontwins, (b) for two-egg than one-egg twins and (c) for girls with a male partner than for those with a female partner(26); and the second volume of population data (schizophrenia, mental deficiency, consanguineous marriages) for the two Swedish islands investigated intensively by the research unit of Hallgren and Sjögren(27). In a single pair of one-egg twins observed by Swanson(62), both partners made suicidal attempts, only one succeeding.

Regarding the genetic theory of schizophrenia, no decisive progress was made either in identifying the hypothesized mutational (metabolic) change in schizophrenics (18, 34, 56) or in disclaiming it altogether (24, 34). Rosenthal(52) found no statistical evidence for Jackson's nebulous "confusion of ego identity" theory(34) which would imply a higher frequency of the illness in twins than in non-twins, while Böök (34) considered the family and twin data accumulated over a period of more than 40 years as "consistent enough to provide a sound basis for the genetical theory of schizophrenia."

The "surging wave of advance . . . in revealing many of nature's deepest metabolic secrets"(35) was reflected by the fact that the 1960 Nobel Prize in physiology and medicine was awarded to another distinguished duo of experimental biologists, M. Burnet and P. B. Medawar. The Albert Einstein Gold Medal was conferred on Leo Szilard for his outstanding work in nuclear physics and microgenetics, the 1960 Kimber Genetics Award on George W. Beadle, and the Samuel W. Hamilton Medal on this reviewer for research on the genetics of aging. The 1960 Galton Lecture was delivered by Eliot Slater on "Galton's Heritage"(55), while the 1960 R. Thornton Wilson Awards in genetic psychiatry were shared by Aaron Bendich and Sidney C. Werner(64).

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NEUROPHYSIOLOGY, ENDOCRINOLOGY AND CHEMISTRY

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Neurophysiologists are studying the mechanisms of motivation, drive, reward, punishment and emotion in a way exceedingly relevant to psychiatry. The terminology is complex and foreign to that of psychiatric literature. Summaries(1) and reports of symposia(2, 3) give the best introduction to this field. It will be recalled that the cerebral cortex of primates may be divided into a phylogenetically old, 2 cell layered cortex, a new or 6 layered cortex and an intermediate type. The new cortex growing up in the center of the old cortex has expanded greatly in primates and is related in great part to long distance sensory projection systems. It is accessible to exposure for experimental purposes and to its function has been attributed the superiority of man's intellectual capacities. This cortex is now somewhat deemphasized in experimental work as it has been possible to introduce microelectrodes in the other types of cortex and learn something of their activity. The old cortex, which Adolf Meyer called the purse string structure since it has been pushed down to surround the brain stem, is often known as the limbic lobe. Its limits are poorly defined but it includes the septal nuclei, subcallosal gyrus, olfactory tubercle, diagonal band, amygdala and hippocampus. This cortex has extensive reflex connections with the hypothalamus and brain stem through the medial forebrain bundle and fornix. Until recently its function has been a mystery. The intermediate cortex forms another ring structure between the old and new cortex. From a phylogenetic point of view it is a relatively recent development. Again its limits are hazy but it includes the cingulate gyrus, insula, hippocampal gyrus and the base and probably a large part of the rostral portion of the frontal lobe. It appears to be related closely to the old cortex and serves to elaborate its activity.

The roles of the old cortex are now studied actively and certain useful hypotheses are emerging. MacLean(2) thinks that it is concerned with two basic life principles, self-preservation and preservation of the species. Thus stimulation of the amygdala and its related structures gives rise to alimentary automatisms such as chewing and retching from one point, whereas from another point it elicits searching, angry or defensive behavior that is required in the search for food and the struggle for survival. Stimulation of certain places in the hippocampus, cingulate gyrus and septum results in behavior conducive to preservation of the species, such as pleasure reactions, grooming behavior and sexual manifestations, including penile erections. Similar sexual responses can be obtained along projection pathways that follow a course from the septum through the medial preoptic region into the medial forebrain bundle. Leake(2) pointed out that repeated stimulation of this pathway does not lead to inhibition. Olds (2) reported that animals with an electrode in this region will self stimulate for periods of as long as 26 hours without any apparent lessening of the effect of the stimulus. When they stop, they stop because they collapse.

Lilly(2) discussed a small area in the septum, possibly representing the medial forebrain bundle in relation to lack of fatigue. A monkey with an electrode in this area will stay awake and self stimulate for 48 hours without sleep. The sexual system here seems to be combining the effect of the powerful energizing avoidance system and the extreme pleasure of the rewarding sys-

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tem. Olds(2) spoke of a common denominator of function in this area and the relation of all drives to a common mechanism of reinforcement. Slight movement of the electrode in the hypothalamic, midbrain or limbic region can bring about sharp differences in elicited behavior, but there is always a positive reinforcement of behavior. Olds (2) has shown that a region yielding a high self stimulation ratio runs in a broad path along the medial forebrain bundle region in the ventrolateral floor of the hypothalamus. Bond(2) thinks of the septum as a general system for energy coming upward and going to various areas that participate more selectively in different types of behavior. Olds stated that anatomically the septal area is a junction on a two way route between amygdala and hypothalamus and also a junction on a two way route between hippocampus and hypothalamus.

The small portion of this review related to endocrinology may follow here, related to the neuroendocrine aspects of sexual activity. Sawyer, *et al.*(1) studied the neural events leading to the release of gonadotrophic hormone from the pituitary producing ovulation. In the rabbit, excitation of vaginal receptors causes ovulation. Such stimulation is followed by alterations in brain wave activity in the lateral portion of the hypothalamus, preoptic region and in the frontal and limbic cortex. This activity begins a few seconds after the stimulus and continues for several minutes. In animals with a sexual cycle, similar changes of electrical potential occur preceding ovulation. This modification in the lateral preoptic region appears to be related to sexual activity since it could only be recorded during spontaneous or induced estrus. Ascending reticular fibers from the brain stem appear to excite neuroendocrine hypothalamic mechanisms. Ovulation may be blocked by a variety of drugs which appear to impair excitability of the reticular system. Both cholinergic and adrenergic blocking agents prevent ovulation. The cholinergic components act earlier and perhaps involve the afferent pathways from the vagina. The adrenergic component probably represents the final hypothalamic link with the hypophysis.

Green, *et al.*(3) have observed the development of hypersexuality after lesions of the pyriform cortex beneath the basal amygdaloid nuclei in the old cortex. This appeared not so much an actual exaggeration of sexual behavior as a loss of the animal's capacity to distinguish its special territory from the ordinary environment and to adapt its behavior accordingly. There seems to be no evidence that the hypersexuality induced by lesions in the pyriform cortex has anything to do with endocrine mechanisms. These observations perhaps open the problem of territorality to experimental study. This is a subject of special importance in human relationships.

Before leaving the hypothalamic area its relation to appetite may be mentioned(2). This appears to be a food intake mechanism in the lateral ventral hypothalamic region. After injury to this area extremely hungry animals refuse to eat when presented with food. After injury to a closely related system a satiated animal still makes chewing movements and takes food into the mouth over and over again. Medial lesions in the hypothalamus make the animal eat when he is not hungry and lateral lesions make the animal refuse to eat when he is hungry. In both cases the animal is more prone to be guided by taste than any drive to eat. It is impossible at present to relate the problem of anorexia nervosa to these findings.

Psychiatrists may be interested in basic physiologic concepts concerning the nature of inhibition in the nervous system. It appears that certain neurons with short axons, internuncial cells or type II cells of Golgi, have an inhibitory function and give off a special chemical mediator at their terminal synapses which is inhibitory. This causes a hyperpolarization of the neuronal membrane which is the reverse from that associated with excitatory reaction or depolarization. This theory was first glimpsed by intracellular recording from spinal motor neurons. Renshaw(1) found that a two neuron reflex arc was inhibited by stimulation of the ventral root. He proposed that this was due to antidromic stimuli evoking a discharge of the interneurons. Eccles(1) called the specialized cells mediating the inhibitory influence Renshaw cells. There is a belief that an identical chemical transmitter is liberated at all the functional terminals of

a single neuron. Thus the synaptic transmitter from motor axon collaterals to activate Renshaw cells is the same transmitter which activates muscle cells at their peripheral terminals, namely acetylcholine. The insertion of an intermediate neuron in the circuit is a device to change the chemical mediator acting on the next or the inhibited cell.

Chemistry may be represented in this review by a consideration of the nature of the inhibitory transmitter. Florey and McLennan(1) found a Factor I which caused inhibition of the stretch reflex. It is not the same as acetylcholine or the postulated sensory transmitter. Factor I remains in solution after treatment which precipitates histamine, noradrenaline and adrenalin. Strychnine formerly considered as a convulsive drug blocks Factor I and wipes out the inhibitory action of the Renshaw cells. Investigators are now working with gamma-amino-butyric acid (GABA), which is found in brain extracts and forms part of the inhibitory factor. The action of GABA exhibits many qualities of nerve cell inhibition. The use of GABA applied topically to the surface of the nervous system has demonstrated the absence of inhibitory neurons in the cerebellar cortex. It has also been proposed that there is an absence of Renshaw cells relaying the inhibitory transmitter in the hippocampus. This would tend to explain the low threshold of the hippocampus for seizure activity. An outstanding feature of GABA is its predelection for dendritic synapses.

Changes in electrical potential recorded in brain wave tracings has become an important indicator of conditioned reflex activity and permits evaluation of events not only in cortical but also in subcortical structures. Yoshi(1) found that the conditioned response appears first in subcortical structures, particularly the midbrain reticular formation, and is much larger and longer lasting there. In early stages the conditioned response is diffuse but later the thalamic reticular system filters out widespread impulses so that they reach only the localized cortex where the effect of the unconditioned stimulus occurs. Morrell and Jasper(1) used visual stimulation as an unconditioned stimulus in forming temporary conditioning. The light was repeatedly preceded by an auditory or tactile stimulus to which the animal had previously become adapted and did not respond. A generalized potential change in the cortex upon auditory or tactile stimulation provided first evidence of conditioning. When the reflex was further developed the auditory or tactile stimulus provoked only local activation of the visual cortex.

Worden(2) found that potential changes in the electroencephalogram could be elicited at all levels of the acoustic pathway in response to conditioning. He planted multiple bipolar electrodes chronically along the auditory pathway in the cochlear nucleus, trapezoid nucleus, inferior colliculus, medial geniculate, auditory cortex and reticular formation. Since the animals were still alive the position of the electrodes had not been verified. Using a constant tone of several seconds duration as a signal the animals were taught to press a level to obtain food. The cats were also trained to a negative auditory stimulus which meant that the pedal would not deliver food. The cats showed signs of learning on the third day of trials and potential changes were noted in certain leads following the auditory signal. On the sixth day of training to the positive stimulus large potential changes were present in all leads. There were correlations between the evoked potential changes in the different leads and the individual behavioral events so that the responses from different leads varied from time to time. Extinction of the conditioned reflex increased the amplitude of evoked responses both to the positive and negative stimuli. During learning the positive stimulus evoked a larger response than the negative, whereas, in extinction the negative was greater than the positive. Galambos(2), in commenting upon this work, pointed out that this study demonstrates clearly that brain changes in conditioning are by no means limited to neocortical structures.

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ELECTROENCEPHALOGRAPHY

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Recently papers on EEG and conditioning have trickled into the neurophysiological literature in increasing numbers. In the past two years there has been a "paper explosion" in this field. International symposia with large East and West participation were held in the U.S.A., France and U.S.S.R. Countless papers and reviews were prepared(24, 38). This limited review will have to be once more constricted in its scope, covering, this year, conditioning and EEG. One important contribution confirming previous findings(18) in a more controlled experiment should, however, be noted(44). Intravenous pentothal was administered to carefully selected patients with either schizophrenia or depression. The resulting increase of EEG activity, particularly in its fast range, was significantly higher in schizophrenics. Whether depressed individuals are characterized by a decreased drug-induced electrogenesis when compared with normals or the schizophrenics have a true increase of the electrophysiological output is still to be investigated. Previous studies suggest that the latter is correct(18).

CONDITIONING AND EEG

1. *Generalization and Concentration*: Early studies suggested that a generalized cortical desynchronization is seen at the onset of conditioning. This desynchronization is later "concentrated" in the region related to unconditional stimuli (UCS): occipital area in conditioned alpha-blocking; contralateral motor cortex in leg withdrawal reflexes. Diffuse evoked potentials and desynchronization could be induced by conditional stimuli (CS) in many structures (generalization). Certain cortical areas are more suited for associating stimuli than others. Secondary potentials evoked by flicker were recorded in cats in the sensorimotor, primary visual and associative areas, but not in the primary auditory cortex(15). The motor cortex shows secondary potentials evoked by all sensory modalities and, therefore, represents an "associative cortex" par excellence. In man, pairing a conditional stimulus (CS) with fist clenching elicits a conditioned local depression of the "wicket rhythm" in the contralateral central region. This is preceded by a phase of generalized desynchronized response(15). Desynchronization and evoked potentials were found at the beginning of learning in the hypothalamus(26, 37), thalamus(41, 49), and reticular formation(21, 49). Regular rhythmic activity could be observed in the medial thalamus and slow rhythm in the n. centralis lateralis(43). In the dorsal hippocampus, 6 c/second activity is generally found at that stage(2, 20, 21, 49). However, approach behavior is more prone to be associated with such activity than other behavior manifestations (searching head movements)(2). Such hippocampal activity may reflect reticular formation activation (20, 21). When CR's are established, desynchronization may persist in the cortex and hypothalamus where it may shift in time toward the onset of the CS(34). Slow waves may appear instead(17, 27, 28, 42, 49). Certain thalamic nuclei (VA) may become involved in CR's, and 4 c/second activity appears(47, 49). The same is observed in the reticular formation: slow activity may appear at this stage; evoked potentials may be suppressed here (particularly in avoidance) or increased (in approach)(24, 49). Hippocampus may also show a variety of responses. The negative stimuli during differentiation may elicit either desynchronization or slow activity, or regular slow rhythm.

While during the initial phases of conditioning, the effects are wide-spread and relatively constant, during the second phase of conditioning, less constant phenomena are observed. In one study(4) using cats, no local response was found in conditioned arousal by a tone paired with electric shock to the leg; electrical responses decreased by repeating CR's. The lack of a constant relationship between the EEG arousal and CR's is not surprising since cortical desyn-

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chronization does not always signify an excitability increase(30). In defensive CR's, despite diffuse cortical desynchronization, thresholds established by electrical stimulation decrease only in the contralateral motor cortex. Also, two desynchronizing systems were suggested for the reticular formation (3); one related to food-getting and the other to defensive reflexes, corresponding to approach-avoidance dichotomy. Chlorpromazine affecting only defensive system, permits dissociation of these effects. Also, when one finds a hypothalamic "point" facilitating food-getting behavior, its stimulation automatically inhibits defensive reflexes(19, 20).

EEG changes differentially found in a variety of cortical and subcortical areas during different phases of conditioning suggest that "closures" of temporary connections may occur in the subcortex, rather than the cortex(15). The following additional procedures have been used:

A. *Frequency-Specific EEG Changes:* When a rhythmic stimulus (flicker) is used as CS or UCS, driven responses in the EEG are facilitated and often new "injected" frequencies may be revealed in the tracings between conditioning trials. Recording these "labeled"(24, 25, 26) frequencies facilitates the study of the destiny of a CS in the cerebrum. All workers agree that the appearance of these new EEG frequencies are associated with early conditioning and that they tend to disappear at a later date. However, for some, there is a final disappearance of these rhythms when the conditioning is well-established(31); for others, they concentrate in a few critical structures, at least in the approach behavior (not in avoidance)(24). Thus, a 3 to 4 c/second flicker paired with electrically induced leg withdrawal, elicits driven responses in both visual and contralateral sensorimotor cortex (35). "Labeled" rhythms were found in the cortex, reticular formation, and hippocampus during initial phases of food and avoidance conditioning but they shifted to the visual system and the n. ventralis anterior when conditioned behavior was well established (24, 25, 26). In another study, during conditioned avoidance behavior, both "driven" and "injected" resting rhythms were found in the cortex and hippocampus, but they disappeared when the conditioning was well established(31). They may reappear when CS's are not reinforced(35) (see also 46, 50). They seem to be facilitated by processes of differentiation(10, 29). It seems, therefore, that these rhythms are used by the CNS for stimulus-identification, particularly during stressful situations(31). It is not certain whether they are required to carry out a well established CR.

B. *Laminar Studies and Microelectrography:* During initial stages of training, single cell activity to visual CS is induced in visual cortex, hippocampus, and reticular formation(37). According to another study, however, the formation of the motor CR is always associated with a decrease of unit activity in the motor area(23). When the reflex is well established, activity predominates in layer 4 (receptor) of the CS region and in layer 5 (effector) of the motor cortex(39, 40). A beautiful analysis of the phase reversals in the dorsal hippocampus during training was described(2).

C. *Cerebral Stimulation:* Attempts to study conditioning by direct stimulation of the cerebrum are increasingly successful. Stimulation of cortical areas was paired with leg withdrawal and this made a successful CR(12). This study showed an easy transfer of conditioning to the sensory stimuli of a modality corresponding to the cortical region stimulated, or to the cortex of the opposite hemisphere. The latter can be observed after sectioning the corpus callosum. Sectioning cortex around the stimulated areas does not prevent the appearance of CR, but undercutting this region, does. This suggests that the temporary pathways are centrifugal. Although the initially stimulated region may be ablated, the CR persists. These studies were extended to cerebral stimulations for both CR and UCR. Thus, the latter can be realized by stimulating the motor cortex(14).

In a satiated animal, a food CR could be established only when corresponding points in the hypothalamus were stimulated(45). After repeatedly pairing a CS for food-getting (3 c/second flicker) and hippocampal stimulation at the same frequency, the latter applied alone induces the food CR. This CR may be partially differentiated from the electrical stimulation applied to the opposite hippocampus(31).

2. *Participation of Subcortex in the Genesis of Conditioning:* These general findings show that subcortical regions may participate in the formation of CR's. On the basis of analogous data and in view of the convergence of many sensory modalities upon the neurons of the non-specific systems of the mesencephalon, diencephalon and rhinencephalon a theory was proposed that the "closure" of the temporary connections takes place in these regions preferentially (15). One related argument(5, 6) is that since many CR's are associated with emotional components, it is reasonable to assume that additional closures will be established in the limbic system and hypothalamus, the main closures remaining in the cortex. Direct experimentation in this field was developed using electrophysiological procedures in addition to ablations. The results of the latter were both confusing and illuminating. Practically any higher cerebral system could be eliminated in several stages without irrevocably suppressing the ability of the animal to form temporary connections of some sort. Massive bilateral lesions in the reticular formation do not suppress EEG arousal(1, 11) visual pattern discriminations and avoidance reactions. When intracerebral reflexes are formed by using stimulations of reticular formation as UCS, the ablation of the stimulated region does not suppress CR (41). Transcallosal connections are not indispensible for generalization(12). Bilateral hippocampal lesions do not block avoidance behavior in cats(20, 22), although they impair auditory CR. However, lesions of centre median may impair CR's (13, 48). Ablation of the posterior hypothalamus does not(13).

Electrophysiologically, attempts were made to produce temporary physiological dysfunction in various regions by either setting a spreading depression(7, 8, 9), or convulsive discharges(16, 20, 32, 33, 36). Hippocampal seizure discharges temporarily suppress CR's(16, 20). However, CR's may be formed in cats despite training carried out during hippocampal discharges. Fixation could be established in rats despite the hippocampal discharge preceding the training by a few minutes(32). However, if this interval was reduced to less than five minutes, fixation could not be formed after generalized convulsive discharges. The usual behavior could not be elicited in fixated rats following either generalized or hippocampal seizure discharges at the beginning of the series of trials. However, resistance to the disturbing effects builds up during the consecutive trials insofar as approach behavior is concerned and not in avoidance(32). All in all, it becomes obvious that during early conditioning, widespread connections are formed in a parallel fashion and it seems that the original diffuse desynchronization and generalization of evoked responses somehow participate in this process.

3. *Circuits for Learning:* As a basis for new experiments, hypothetical circuits for conditioning learning have been proposed. Attention was once more drawn to the extraordinary possibilities of a neural reticulum to converge a mass of information to single neurons(15). The proposed diagrams, however, do not contain specific components, which will make a non-reinforced CS to become a conditional inhibitor, a requirement which any diagram of this sort should satisfy. However, the French physiologists do recognize the possibilities of including such connections in their diagrams which is retcular-formation-centered. From Georgia, U.S.S.R. comes the most elaborate attempt to date to propose a blueprint for conditioning, but it is cortex-centered(5, 6). Briefly, an activity of high order is ascribed to stellate cells capable of sustained self-reactivation because of the considerably developed perineural reticulum. Inhibition would be effected through electrotonic activity of apical (generalized inhibition) and basal (limiting focal excitatory processes) dendrites. Reverse connections play a dominant part in this theoretical construction.

The same monograph contains remarkable experimental studies showing the importance of the space factor in conditioning. We believe that space and time factors should be given more consideration for the understanding of conditioning. Experimental analysis shows that potentials evoked by either regularly repeated flashes or intracerebral (hippocampal) stimuli are progressively modified as to their temporal course, seemingly adapting themselves to

the frequency of stimulation(31). It is this kind of basic EEG studies which seem to hold great promise for the future understanding of brain mechanisms permitting an animal to anticipate an event within a certain modality system at a certain time and at a certain place.

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CLINICAL PSYCHOLOGY

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More books are published every year concerned with the status and implications of psychoanalysis. Each of them in its own way expands upon the significance of that subject for the modern world. It sometimes looks as if Jones's impressive biography(17) had given the signal for a continuous evaluation of what psychoanalysis is, *sub specie aeternitatis*, or at the very least what it has contributed to civilization. If the cue for the accession to universal fame is seen in the volume of publicity, and especially in an ever-extending effort to relate the new protagonist to every conceivable facet of culture, *then* psychoanalysis has at long last arrived. The books of which I am speaking must be clearly distinguished from reports about the advances of psychoanalysis as part and as a system of psychology. The contributions here to be reported on are by nature theoretical and tend to be interdisciplinary in orientation. The emphasis is, however, not on the theory itself—at any rate, not on the theory alone—but on its application to a much more general purview(9, 14, 21, 25, 34). The new genre which so vigorously multiplied in the last few years has its risks and problems ; but it also serves a function that may justify its frequent vagaries and pitfalls. All great interpretations of the human condition contain and conceal more than their authors could have been aware. In fact, the enduring greatness of scientific as well as of literary works can well be assessed by the scope of what is at first latent in them, but soon begins to show its stimulating and germinating power everywhere. Any monumental new insight like psychoanalysis is bound to affect the intellectual orientation of man far beyond its original scope. When Freud likened his work to that of Copernicus and Darwin he was no more than realistic, and simply foretold the task ahead of the next generation of Western intellect. The liabilities of those who respond to the challenge are as obvious as they are, historically speaking, inevitable. The ones who examine psychoanalysis with adaptation to new purposes in mind are as prone to compound identification with appropriation as were those who examined evolutionary theory a century ago. In the process, the borderline that divides exploration from exploitation gets so blurred that it can usually be redrawn only after it has been re-surveyed by a later and more detached generation.

The recent trend in the adaptation of psychoanalysis to broad cultural perspectives was ushered in by Marcuse(21) whose point of departure is Freud's cultural pessimism. Marcuse's point of reference is an economic interpretation of social development which he ultimately holds responsible for the evils of conflict and repression. Brown(5), a cultural historian, has more recently moved in the same direction. He is concerned with Freud's ideas on the life- and death-instincts (Eros and Thanatos) and on sublimation, and follows up their workings in history through an examination not so much of history itself but of the interpretation of history and life by various great men. Civilization is viewed as a sequence of deepening repression, and

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Brown's exhortative concern is with the lifting of it. Rieff(29) stays with the present. His attempt is to cull from Freud's discoveries the outline of a new morality. Riesman (30) through a brilliant content analysis of Freud's work already pointed several years ago to the values and sentiments inherent in it. Nelson's collection(24) contains a great diversity of testimonials as to Freud's significance for the century, and shows clearly that psychoanalysis has long transcended its place in psychology and psychiatry. A survey of this expansion is also the subject of a series of seven essays contributed by British psychoanalysts and edited by Sutherland(34). The participants in a very extensive symposium edited by Sydney Hook(14) examined the scientific status of psychoanalysis, and in the course of it produced one of the most interesting and intellectually exciting books in this field. The scientific status of psychoanalysis is habitually belabored by critics who prefer to express their distaste of it in this manner, yet wish to protect their objectivity by ignoring those aspects of psychoanalysis which do not fit their preconceptions. Nevertheless, the unique status of psychoanalytic concepts and the logic peculiar to them poses a problem of vital relevance when it is approached in a realistic and informed frame of mind. A similar symposium edited by Bellak(3) addresses itself to this purpose by examining the concepts of libido theory, of the Unconscious and of psychic structure.

Two outstanding issues of a new psychological monograph series pertain to psychoanalytic theory: Erikson's(10) brings together several important papers of his on identity and the ego, published before. Rapaport(26) offers a terse discourse on the structure of psychoanalytic theory with brief but incisive discussion of its critical problems. The complex tasks of learning and of teaching psychotherapy are at long last treated in a systematic discussion by Ekstein and Wallerstein(9). Fraiberg's book(11) on the psychological understanding of early childhood, among the best available on this subject, should appeal to the professional and non-professional reader alike.

The study of the sociological determinants of mental illness, begun by Hollinshead and Redlich, is continued into an examination of family and class by Myers and Roberts(23). The mental hospital as a small society, and the effect of its covert emotional structure on the patient is the subject of a monograph by Caudill(7). The methodology of research on the effects of various kinds of treatment is dealt with in a procedure-oriented quasi-textbook form by Reznikoff and Toomey(28), and from a multiple point of view, both descriptively and systematically, by Chance(8). Jahoda's book(15) on what is, and on what should be called, *mental health* provides an exemplary discussion of questions which are very far from being merely theoretical or semantic.

Holt and Luborsky's two volumes(13) report on the criteria for the selection of psychiatric residents and on the theoretical and methodological problems of defining them. Their books present one of the best achievements in recent psychological assessment (that is, the diagnostic study and evaluation of personality traits and abilities). Among books on diagnostic tests, two volumes on the Rorschach Test should be mentioned: on adolescents by Ames, Metraux and Walker(1), and on elementary school children by Ledwith(18). There is a new book out on the Szondi Test, by Szondi, Moser and Webb(35). Porteus has written a new book on his Maze Test(25) which should be much more widely used, broadly applied and studied than it is at present. A series of interesting new tests aiming at the measurement of social adjustment together with that of intelligence are described by Leiter(19). For a more comprehensive view of clinical psychology two books should be consulted: Brower and Abt's third volume of *Progress in Clinical Psychology*(4), including among others an intensive discussion of the state of diagnostic testing by seven experts; and Beck and Molish's reader(2), a collection of papers in clinical psychology of great historical and topical breadth.

Among the ever increasing number of new books in the social sciences, the following may be of interest for the psychiatric reader: a highly original sociological approach to the problem of identity, its trans-

formation, continuity and change, by Strauss(33) ; a systematic introduction into sociology, outstanding by its clarity, by Johnson(16) ; a comprehensive book on the social psychology of groups by Thibaut and Kelley(36) ; and a very useful compilation of research methods in social relations by Selltilz, Jahoda, Deutsch and Cook(32). On the subject of communication two titles present themselves : one more specifically oriented toward psychopathology, stressing experimental studies on a variety of levels, by Hoch and Zubin(12) ; and a more discursive one oriented toward ideas originating from a variety of fields, by Carpenter and McLuhan(6). Mandler and Kessen(20) deal instructively with the logical and epistemological qualities of psychological concepts. Rapoport presents a mathematical method for conceptualizing human conflict based on Game and Decision Theory(27) ; Roe and Simpson a collection of papers on the evolutionary origins of human behavior (31) ; and, finally, Murray(22), a series of papers organized around the theme that myth is not only an historical form but a perpetual aspect of experience, and thereby an elementary determinant of human conduct.

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CLINICAL PSYCHIATRY AND PSYCHOTHERAPY

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It is obviously impossible in the space at our disposal to include all of the research and clinical contributions of importance that have been published during the past year. It is, therefore, our task to select rather arbitrarily a limited number of those that have come to our attention, at the same time, attempting to present items with some spread over the clinical area assigned to us.

As should be expected, schizophrenia because of its position in the frequency of mental disorders, remains of prime interest in clinical psychiatry. Chapman, *et al.*(1) submit a very comprehensive thesis dealing with human ecology of disease, impaired organ functions and tissue damage. It presents a theory of adaptive reactions in general, and those in the schizophrenic process in particular, and Searles(2) devotes an excellent essay on the dynamics of integration and differentiation in schizophrenia ; a theoretical exposition of phenomena which in clinical practice are closely interwoven.

A discussion of a central dynamism in chronic schizophrenia is discussed by Van Dusen(3) with emphasis on the clinical phenomenology with case examples. He points out that a thorough phenomenological exploration becomes effective psychotherapy with the chronic type of patient whose symptoms are stereotyped. The semantics and context of the schizophrenic's language is discussed by Ferreira(4) a difficult subject which he attempts to clarify and to establish a theoretical basis for the bizarreness of the language used by schizophrenics, and Lewis and coworkers(5) made a preliminary study of abstraction ability and orality in schizophrenics utilizing 30 patients and 30 matched controls utilizing a proverbs test. These studies confirmed the relative inability of the patients to abstract such material, particularly in abstracting oral as compared to anal and phallic proverbs. No such differences were noted in the control subjects.

Johnson(6) reported his investigation of the moral judgment of schizophrenics. Forty-five patients and 15 controls were studied by Baruk's Tsedek Test of Moral Judgment as a basic procedure. The judgments made by schizophrenics differed from the non-schizophrenics in social thinking. It was one of deviancy reflecting tendencies toward social detachment, and egocentric concerns while normals made humanitarian judgments pre-

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dominantly. Beck(7) in an interesting study with theoretical components presents in some detail the phenomenon of affect autonomy in schizophrenic patients, and Ehrenthal and Jenney(8) investigated the time sense in schizophrenics. They discuss the various conceptions of time and found this sense disturbed in a number of patients. Some gave their ages to be those they were at the beginning of their illness. Modell(9) made a systematic study of schizophrenic patients with auditory hallucinations. Tape recordings were made of the subject's descriptions over a long period of time, and it was possible to draw some pertinent generalizations regarding the mechanisms involved.

In a study of homosexuality and paranoid schizophrenia Klaf and Davis(10) made a survey of 150 patients and an equal number of non-psychotic controls. The findings are discussed in relation to Freud's hypothesis concerning the development of paranoid symptoms. They conclude that additional thorough scientific studies will have to be made for the verification of the theory that paranoid mental symptoms develop as a defense against emerging homosexual trends. Utilizing human figure drawings by 18 schizophrenic and 18 normal adults Machover and Liebert(11) made an extensive study of these two groups of subjects. Drawings were produced with and without L.S.D. administration revealing a variety of differences which are described and analyzed. An interesting investigation, attempting to detect factors having prognostic significance in both acute and chronic forms of schizophrenia, was reported by Walker and Kelley(12) the types of symptoms, various social and other environmental factors were considered, as well as the length of, and type of therapy afforded. It is of some interest to note that they found the Hooper Visual Organization Test (V.O.T.) a failure as to its prognostic value with both the acute and chronic types. Salzman(13) reviews some of the pertinent studies that have been made on the dynamics of paranoia and paranoid states illustrated by case material pointing up the theoretical and therapeutic aspects of the condition. Three cases of Ganser syndrome are described by May and co-workers(14) in connection with a constricting but protective life situation which is preferred by the subject to the hazards of freedom. Acute symptoms were precipitated by the threat of expulsion from the first type of environment into the second. This Ganser reaction is therefore released by a situation which is the reverse of other reported cases.

Bartemeier(15) presents cases to show the predominating symptoms of borderline disorders where anxiety may have served to prevent further development of the psychosis. The patients were considered borderline as they had neither hallucinations nor delusions and were not legally committable. Forrer(16) discusses instances and presents cases of hallucinatory experiences in non-psychotic persons, emphasizing that benign hallucinations are not infrequent in those hospitalized for medical or surgical reasons. A review of the concepts in the literature and a discussion of the factors involved in serious suicidal intent with case illustrations of the common features characteristic of these patients, which appear to constitute a special syndrome, has been published by Stone(17), also a review of the literature and a study of cases of adolescent and young adult self mutilation incidents in a general psychiatric hospital was made by Offer and Barglow(18). These self attacks occurred in severe character disorders, in schizophrenia and in borderline states. They are interpreted as "suicidal gestures" rather than genuine attempts. The incidents have a contagious quality through imitation and identification.

Among the accounts of perversions is the informative description of the mechanisms of aggression and forbiddeness in creating voyeurism published by Yalom(19) with case histories and psychodynamic comments. Wahl(20) has reported the psychodynamics of two cases of consummated maternal incest. While father-daughter incest is not rare, mother-son incest is either exceedingly rare, or at any rate is rarely reported; therefore, these two cases are of particular interest psychologically. Regarding family neuroses, Erenwald(21) reports 4 case histories including one family pedigree covering 4 generations. The study focuses on the potentially communicable nature of disturbed interpersonal attitudes.

Norris(22) discusses the possible prenatal factors in intellectual and emotional development. Several of these are pointed out, but it is emphasized that investigations on prenatal influences are still new and speculative. If they are eventually confirmed they will serve as a "first line of defence against mental illness." There are obviously some psychophysiological influences that exert emotional and physical stress on the prenatal organism. Hoffman(23) attempts a philosophic analysis of attitudes toward psychiatry, nature, and science, to clarify the meaning of concepts and the terms used to express them. He points out that the terms used in labeling personalities cannot be defined scientifically and that their use often confuses the issues. Llopis(24) of the Psychiatric Clinic of the Provincial Hospital of Madrid has presented an essay describing in detail his unique "Concept of an Axial Syndrome Common to all Psychoses." It is based on a great deal of experience.

PSYCHOTHERAPY

A comprehensive overall review by Appel (25) states that physicians and surgeons will be called upon in the future to do more psychotherapy than in the past or present. He outlines the various types of psychotherapy that can be applied by the general practitioner. He presents an illustrative case history. Lichtenberg and associates(26) offer an analysis of various types of therapy in terms of their utility in practice and clinical settings. It is a classification of therapeutic procedures and techniques according to degrees of mutual-achievement strivings as related to type and severity of the mental disorder. Whitehorn and Betz(27) report a continuation of their pioneering studies of the physician-patient relationship in therapy, showing how the therapist is a crucial variable in the results of treatment with schizophrenics and neurotics. These unique studies have a fruitful predictive value. Bellak(28) deals with the treatment of schizophrenia and psychoanalytic theory with their interactions. It involves mainly the situation of ego strength and ego functioning. Any treatment must act toward the improvement of these. Schizophrenia is interpreted as global disturbance of the ego function, of a severe nature. Ansell(29) in an essay reviews the ideas and ideologies in psychotherapy, indicating the directions in which therapeutic attitudes are moving, particularly in psychoanalysis, and Lehrman (30) has examined critically the lack of precision in psychoanalytic procedures reviewing a number of published opinions by various authorities, from which he concludes that scientific precision has often been consciously excluded from classical psychoanalysis, that it has several aspects of religion and has tendencies to "defensive secrecy and arrogant elitism." Novy(31) analyzes religion in relation to psychoanalysis and other psychotherapies pointing out the issues and the complications of the relationship.

Important experiments in hypnosis reported by Kaplan(32) showed that it does not completely remove the perception of pain. It is only displaced or repressed by an artificially induced dissociative state. The subject feels physical pain but does not consciously realize it. It is concluded that chemical agents acting at the neurophysiological level are more appropriate to use, when possible, than hypnosis. Meldman (33) reports a case of personality decompensation after hypnotic symptom suppression. In his opinion, while hypnosis is effective for symptom removal, it is contraindicated when the symptom is related to an obsessive-compulsive syndrome or to a serious personality character defect or to a defective ego. Careful histories must be taken and a diagnosis made to determine the type of therapy to be applied.

Doshay(34) advocates psychotherapy as an adjunct in the treatment of paralysis agitans. Regardless of the type of drug and physical measures required, psychotherapy is needed to integrate the therapy. It is important in this long term disorder to gain and maintain the confidence and cooperation of these subjects and to support them psychologically. Strupp(35) has published an excellent discussion of the nature of the psychotherapist's contribution to a treatment process.

Group psychotherapy is very active in many centers over the United States and is definitely on the increase, and there are some interesting publications. Berne(36) discusses psychoanalytic versus "dynamic"

group therapy. He points out that the evidence in the literature is insufficient to justify applying the term "psychoanalysis" or its cognates to group therapy, but that "dynamic group therapy" should be appropriate and enough. Straight(37) made a follow-up study of 24 hospitalized patients—14 of whom had received group therapy and 10 utilized as controls. Evaluation was made of the level of social functioning. The evidence for better adjustment was in favor of the group treated patients. Finally, Bennis(38) presents a critical review of group therapy research emphasizing and analyzing the difficulties and the realistic and emotional reasons for the lack of collaboration in research in this field.

Among the informative books of the year bearing on the topic of this section are :

PSYCHIATRY : DESCRIPTIVE AND DYNAMIC. By *Jackson Smith*. Baltimore : Williams and Wilkins Co., 1960.

PSYCHOTHERAPY : A COMPARATIVE ANALYSIS OF CLINICAL PICTURES. By *Carl Frankenstein*. New York : Grune and Stratton, 1959.

SHAPES OF SANITY. By *Aneslie Meares*. Springfield, Ill. : Charles C Thomas, 1960.

FREUD AND DEWEY : ON THE NATURE OF MAN. By *Morton Levit*. New York : Philosophical Library, 1960.

BASIC THEORY OF PSYCHOANALYSIS. By *Robert Waelder*. New York : Internat. Univ. Press, 1960.

PSYCHIATRISCHE UND NERVENKLINIK. By *K. Kolle*. Stuttgart : Georg Thieme, 1959.

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PHYSIOLOGICAL TREATMENT

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With over a thousand pertinent papers this past year, and a flood of new products from the companies, it has been harder than ever to do justice to the task of an annual review. A new international journal, *Psychopharmacologia,* has set a high standard in its first issues. Several useful reviews in the field of psychopharmacology are listed in our bibliography(1-7). Reference should be made to some thoughtful discussions of the management of depressions(8-10), and to the large scale pooled data on drug treatments from the VA hospitals(11).

WHICH DRUGS TO USE ?

In spite of the endless chain of patentable phenothiazine derivatives and variants brought into the market, Hurst(7) does not believe that any of these can usefully replace chlorpromazine, and suggests that in those rare cases where jaundice or agranulocytosis has occurred, fluopromazine could be substituted. The combined experience of 37 VA hospitals also tends to establish the value of chlorpromazine(11). For the management of depressions, imipramine (Tofrānil) has won wide support(12-15) and phenelzine (Nardil) approaches it in efficacy(16-18). Together they appear to have practically superceded iproniazid (Marsilid), whose toxicity has proved disturbing (19-20), and drastically reduced the use of EST, which in spite of its crudity still is a quick and sure method for the relief of depressions.

Our use of the newer drugs is still mostly empirical; data from small groups of patients with or without double-blind experimental design are reported with monotonous frequency, while careful first-hand clinical observation is being neglected. Astrup(21) attempts a rational analysis of drug action by reflexologic studies, and concludes that the present range of efficacy of anti-schizophrenic drugs is mainly in the broad category of sedation of subcortical activity. "The greater the general impairment of nervous activity, and the more pronounced the dissociative phenomena are, the poorer are the therapeutic effects of ataraxic drugs." Deniker(22) believes that the extreme end product of a drug's action can help us understand its value. Thus chlorpromazine or levomeprazine tend to induce akinesia and bradykinesia, while phenothiazine sulfamide or prochlorperazine induce psychomotor excitement. For this reason the former are used to relieve excitement or hallucinations, while the latter are indicated for withdrawn and passive patients. For perhaps similar reasons Tofrānil, an excitant agent, has also been found useful in the management of withdrawn schizophrenic patients(23).

TOXICITY OF PSYCHOPHARMACA

Aside from the relief of target symptoms, toxicity, though minimized by some drug sponsors, remains a basic concern in the selection of new drugs. It should also be remembered that long-term data on chronic toxicity accumulate slowly. In a series of 29 patients treated with Marsilid, Pare(24) found abnormally high serum glutamic-oxaloacetic transaminase values in 9 cases, which returned to normal after the drug was withdrawn. Similar changes, in a smaller number of cases, have been reported with Nardil(25). Though Rees and Benaim(19) concede the value of Marsilid in depression, a full consideration of its toxicity leads them to conclude its use is no longer justified. The phenothiazine agranulocytosis rate has been estimated at about 1:700, though mild leukopenic reactions are quite common(26). Denzel(27) reports that in 14 out of 50 cases treated with ataractic drugs, spinal fluid protein values above 45 mg. were found, while 11 cases showed abnormal gold curves. Sobel(28) reports, or has reason to suspect, fetal damage when pregnant mothers are treated with insulin shock or reserpine, while chlorpromazine can cause respiratory distress in the newborn and may increase the incidence of both

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antepartum bleeding and prematurity. Roux (29) has induced a very high incidence of fetal death or malformation in mice and rats after prochlorperazine administration. Though its significance can be questioned, abnormal cephalin flocculation tests have been found in 5% of the patients treated with trifluoperazine(30), and have also been found in treatment with chlorpromazine, perphenazine and phenelzine(31).

From another point of view the drowsiness, hypotension, motility changes and even the euphoria induced by some drugs can create legal problems involving traffic offenses(32), for example, especially since chlorpromazine mixes poorly with alcohol (33). Children appear to be especially susceptible to marked motor side-effects from tranquilizers(34-36), and a peculiar susceptibility to heat-stroke among adolescents under chlorpromazine is described (37). In an older population an increased tendency to both injury and illness has been reported(38). In addition to the complications and side-effects mentioned in previous reviews, hairy tongue is encountered in patients on chlorpromazine and mepazine (39). Harnkoff and Heller report memory difficulties in the course of otherwise successful treatment with MAO inhibitors(40). Ciezlak(41) enumerates the extraordinarily varied and occasionally dangerous complications encountered in reserpine treatment; Habel(42) declares that the dangers of its chronic use are still unknown, though 15,000,000 tablets a month are being dispensed in Germany.

KEFAUVER AND THE DRUG PROBLEM

The investigatory activity of Senator Kefauver's committee has pointed up some practices and abuses in the drug industry that are of interest to psychiatrists(43). Intense competition among companies leads not only to valuable discoveries of new products, but also to a confusing and superfluous variety of drugs, which in turn entails an enormous promotional activity that is bound to exaggerate the positive and minimize the negative features of a product. This promotional activity has reached the point where the industry expends $5000 per doctor per year on the effort, with the burden of expense borne by the public. Thus it is that one company wholesales reserpine at $39.50 per 1000 tablets under its trade name, but sells the identical product under its generic name to the government for 60 cents per 1000. The Food and Drug Administration is inadequately staffed and budgeted to maintain necessary safeguards and surveillance, but the busy practitioner is, on the other hand, seldom in a position to sift the details of evidence, often contradictory, to allow him to appraise the drugs. The following brief notes on some drugs are mere suggestions of what the literature contains.

NEW DRUGS

The unique taming effect of chlordiazepoxide on vicious agitated monkeys, dingo dogs and wild animals, stimulated the clinical trials that produced Librium(44-46), which markedly reduces the tension, anxiety and agitation of neurotics, and is said to be very effective in chronic schizophrenia. The side-effects of drowsiness, fatigue and ataxia are infrequent, mild and reversible(47). Two other new sedative drugs related to the phenothiazines are thioxanthene (Taractan) a broad spectrum drug with marked hypotensive action(48-51), and fluphenazine (Prolixin), a trifluoromethyl homologue of perphinazine, possessing extraordinary potency(52, 53).

Some 40 other new products are described in the literature, but usually with little claim to attention. Some are non-toxic and ineffective, others are too toxic, and still others are without unique properties to recommend them. To mention only a few: chlorprothixine(54) acts like a phenothiazine, but is said to be non-toxic; L.I.S813 (Clarmil in France) is a phenyl boric acid derivative of no value in psychoses, but with marked sedative effect in neuroses, anxiety and reactive states(55); I.N.-461, benzlindolyethylpyridine, is a non-soporific sedative(56); aminophenylpyridone(57, 58) (Dornwal) and valmethamide(59) (Axiquel) are supposed to relieve anxiety, *etc.*; phenylpyrrolidinopentane (Katovit in Europe) increases resistance to dysfunction under stress(60); thalidomide is a safe, non-toxic, non-hypnotic sedative(61); cyclopentimine(62) is a well tolerated anti-anxiety, anti-psychosis agent; recent issues

of this *Journal* contain several reports on other new drugs.

Captodiamine (Suvren or Covatin) is described as a non-hypnotic stabilizer that relieves both agitation and depression(63); two new stimulating agents are 5-phenylpseudohydantoin (Tradon), said to be indicated in mild neurasthenic states only (64), and a new analeptic drug, ANP235, sponsored by Delay and his group(65), is supposedly of special value in psychic changes following organic insults. Hypericin is a fluorescent substance derived from Hypericum perforatum that is said to induce marked improvement in most mild or moderately depressed patients(66).

Of special interest is a recent report by Bucci and Saunders(67) on the use of procaine, a most interesting drug with a long history, generally well tolerated and with relatively few dangers. Among other enzymatic effects, it is a MAO inhibitor, capable of relieving both depression and schizophrenic symptoms. It is reported to have a most helpful effect on a group of patients resistant to all other current therapies, enhancing vigor, reducing fatigue, and strikingly reducing blood pressure in hypertensive cases.

FAMILIAR DRUGS

Trifluoperazine (Stelazine) can now be regarded as a well established drug, potent in handling many schizophrenic symptoms, useful in allaying anxiety in neurotics, but with distressing and sometimes dangerous side-effects(68-72). Cahan(73) found it of limited value and of considerable toxicity in an elderly female population. Levopromazine (Nozinan in France) is widely used on the Continent in psychoneuroses, agitated and depressed states, and is well tolerated by the aged(74, 75). Promazine (Sparine), actually the oldest of the ataraxics in common use in this country, is useful for rapid sedation in acute psychoses, but can also be quite toxic, especially for the aged; in moderate dosage, however, it is often better tolerated than chlorpromazine (76-79). Another useful alternative to chlorpromazine is prochlorperazine (Compazine), especially effective in manic and acute delirious states(80-82). Perphenazine (Trilafon) is still widely used(83), thioridazine (Mellaril) is highly regarded(84-86), but mecazine (Pacatal) in a double blind study(87) was much inferior to chlorpromazine for schizophrenia (and produced one case of agranulocytosis); in another study(88) with anxiety states it was less useful than a barbiturate, "and costs 10 times as much."

Fluphenazine (Prolixin) is highly potent in relieving hallucinations and delusions in chronic schizophrenia, but at the cost of so many side-effects its value is doubtful(89). With similar material trifluopromazine (Vesprin) produced good results with fewer side-effects(90). Reserpine(91-93) is still found effective in some schizophrenic cases where phenothiazines have failed.

Haloperidol has been most favorably described by workers in several European countries. Delay and his associates(94) regard it as markedly effective in mania and acute delirium, and satisfactory in acute and chronic, especially paranoid, schizophrenia. It is of relatively little value in depression and hebephrenia. Though quite safe, it induces extrapyramidal motor symptoms in most patients, and sometimes sudden and alarming excitement; special caution is required with the aged(95-101).

Interest is still mantained in azacyclonol (Frenquel) for its almost specific anti-hallucinatory effect(100). Lithium(103-105) is highly effective in aborting manic states. Its chief danger, injury to kidney tubules, can be avoided by cautious dosage and a high sodium intake to promote its elimination. The water-soluble steroid hydroxydion (106-108) is a safe and effective agent for brief narcosis or to promote relaxation for psychotherapy.

Among antidepressants Tofrānil(109-114) holds first place. In spite of the dangers of agranulocytosis, hypomanic reactions, convulsions and confusion, its good results in psychotic depression are comparable to EST (but not quite equal to it); it is of little value in the mild depressions often seen in office practice(115). In resistant cases Lehmann(116) recommends combination with an induced febrile reaction. Nialamide (117) (Niamid) and phenelzine(118) (Nardil), both less toxic than Marsilid, will sometimes work when Tofrānil has failed,—though Nardil can induce liver disturbances,

headaches, insomnia, edema, excitement and hypotension. Isocarboxazid (Marplan) another MAO inhibitor, has also proven to be an active and usually well tolerated antidepressant, though still too new to be adequately rated(119, 120).

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PSYCHOSURGERY

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An improvement rate of 96% in leucotomized patients is more likely to cause raised eyebrows than raised hopes. Nevertheless, the report by Thorpe(16), who has been following his patients assiduously, shows that 87 of 97 survivors of operation were discharged home. Most of the patients were over 50 years of age. These results were obtained by electrocoagulation of the ventromedial quadrants of the frontal lobes. There were no serious personality defects. The author concludes that on the basis of a 2-7 year follow-up a 95% total improvement rate "may be regarded as the best one could hope to obtain with any neurological procedure in institutional cases."

While no other authors have reported such extraordinary recovery rates, a Canadian group(8), comparing bilateral and bimedial incisions in matched patients, found in their social evaluation that 80% of nonschizophrenics were out of the hospital. Duration of hospitalization was particularly important, the discharge rate being 75% in those hospitalized less than a year, 55% in the 1-3 year group and 35% in those hospitalized for 4 or more years. Bischoff(4) and Rémy(14) found the major prefrontal operation more effective in schizophrenics.

Lesse(9, 10) speaks of "decompression of anxiety" as a necessary preliminary to progress in therapy of other clinical symptoms. This was most graphically demonstrated in patients undergoing lobotomy under local anesthesia. Of 34 patients 29 demonstrated a definite decrease in anxiety during or just minutes following lobotomy. "We found that the clinical psychiatric symptoms (*i.e.*, phobias, hypochondrical reaction, *etc.*) did not begin to fade until the affectual component of anxiety was first significantly ameliorated." McReynolds and Weide(11) assert that the only psychological measure of great predictive importance is concept evaluation in the Rorschach test. This was interpreted as related to the decrease in anxiety following lobotomy.

Barahona Fernandes(2), reviewing the results of Egas Moniz, states: "To act by means of surgery upon diseases purely functional and even psychogenic such as neurosis, was one of the greatest ventures of the Master. It made psychologists shudder and psychotherapeutists angry. But the fact was there, undeniable, and the future has confirmed it." Referring to excellent results in superior individuals such as a priest, a physician and a university student he admits that there are, in other cases, relapses, further progress of the underlying disease and persistent defects. "Leucotomy may accentuate or quicken the deficit of personality begun by the schizophrenic 'morbus.' It is a fire that extinguishes itself and shows the damage done. The delusions disappear

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but the defect remains, sometimes even more evident. The operation gets the blame for things that belong to the illness . . .

"Leucotomy creates new conditions of accessibility and reaction of the patient (syntonization favoring the vital transference) which should be adequately used for the aimed purpose—diminution of suffering and adaptation to reality."

In a brilliant discussion of "Where Vital Things Happen" Grey Walter(7) shows how emotionally disturbed individuals may respond inappropriately in test situations where simple responses would avoid penalties. He speaks of the "puppet theatre of our laboratory" where a "tragic breakdown" of the mechanism [is manifested by] the total failure of two patients to control by the twitch of a muscle a situation that could be mastered in a few attempts by the humblest experimental animal. Leucotomy corrects this inappropriate response.

Angyán, Huszár and Nyiró(1) studied an obsessive patient by conditioned reflex analysis before and after successful lobotomy. "In place of the typical reflex formation and overwhelming rigid blocking and abstraction in the second signal system there appeared a labile but less differentiating status with concrete formulations." Barber (3) believes that relief of pain by leucotomy is due to the alleviation of worry and concern, a state that can be accomplished in some other patients by opiates, placebos and hypnosis. The common behavioral matrix is a mitigated readiness to respond to stimulation.

The curious compartmentalized attitude toward lobotomy crops up in Brizzi's(5) report. In one paragraph: "All depressive psychotics recovered, while 70% of the control group had to be readmitted." In another paragraph: "In principle the author does not believe that a cure was ever attained in any of his patients."

Many lobotomized patients deny having been operated upon. Paganini and Zlotlow (13) found that denial was a continuation of the defense mechanism employed by schizophrenics previous to lobotomy.

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CHILD PSYCHIATRY: MENTAL DEFICIENCY 1960

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Addresses, without number, to community groups on mental hygiene must be reckoned as one of the not inconsiderable occupational hazards of the child psychiatrist. Even if we set aside the problems arising from the cumulative impact of successive nights away from home on our psychic economy (and that of our children), there remain quite fundamental questions as to what we should attempt to teach and as to whether lectures, group discussions, television programs and the like are at all effective in changing the

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behavior we set out to modify. At an Assembly jointly sponsored in 1958 by the APA and the N.A.M.H., whose proceedings have just appeared(1), issues of content and method in mental health education were subjected to a penetrating, sophisticated, and long-needed critique. The monograph makes abundantly clear the urgency of re-examining goals, weighing the evidence for the aphorisms so readily dispensed, and attending to the very real possibility that "education for mental health," if not carefully scrutinized, may have unintended negative consequences. When we urge better care for the mentally ill and public support for the recruitment and training of mental health personnel, we stand on solid ground. Beyond this point (which is to say, beyond our own area of clinical expertness), the footing is at best precarious, even for the angels among us. What constitutes positive mental health, how it should be taught and whether it can be taught at all remain questions of dispute among serious workers in the field. This caveat to the seller is not a call for a moratorium on public education for mental hygiene; it is an appeal for a more searching examination of conventional beliefs and for studies to evaluate the results of educational efforts.

Few of us read Russian; in consequence, the work of our Soviet colleagues has remained largely unknown in this country. A recent volume, distributed to medical libraries by the Public Health Service, provides in English translation a series of "representative" publications from the Russian neuropsychiatric literature(2). Papers with specific reference to child psychiatry include studies in the conditional responses of neonates(3-6), constitutional "types"(7-8), verbal behavior (the second signalling systems in Pavlovian terminology)(9-13), and performance characteristics (will) (14). The notational and conceptual framework is Pavlovian; the experimental approach focuses on intensive study of a limited number of subjects rather than a large statistically analyzed series. The practical emphasis is notable throughout, with the implications for child rearing and pedagogy spelled out by the investigator. To judge from the bibliographic citations, there are a wealth of studies in areas, such as the neonatal period, which have been far less extensively explored in this country. Novlyanskaya's paper on anorexia nervosa(15) makes heartening reading in view of the common assumption on these shores that the Soviet psychiatrist neglects motivational and psychotherapeutic considerations; with transposition of terminology, the findings harmonize remarkably well with the clinical themes evident in American studies of this disorder(16).

A very welcome addition to periodicals is the new and excellent British *Journal of Child Psychology and Psychiatry* under the aegis of the distinguished Emanuel Miller, who contributes a notable "discourse on method" to its maiden issue(17). Clarke and Clarke(18) review their own and related studies in maternal deprivation; without minimizing the importance of social measures to prevent this condition, they emphasize the positive gains that remedial measures can offer neglected children and conclude that the severity and permanence of the effects of the milder (and more common) types of deprivation have been overestimated in the earlier reports in the literature. That it is not the physical separation and institutionalization *alone* but rather that plus the experience of being rejected and remaining unwanted that leads to emotional difficulties and character defects is indicated by Kellmer Pringle and Bossio's study(19) on deprivation. Does manic depressive psychosis exist in childhood? This much-vexed question has been examined by Anthony and Scott in a scholarly paper(20) which reviews the available literature, offers a set of definitive criteria for the diagnosis, and describes a rather classical case with onset at the age of 12; this treatise should become required reading. Companion papers from the Maudsley by Hersov(21, 22) are significant additions to the literature on school phobia. In the first, 50 phobic, 50 truant and 50 normal cases are contrasted, with clear evidence for the psychoneurotic constellations in the phobic children and their families(21). The second examines the therapeutic outcome for 29 inpatients and 21 outpatients(22). Thirty-four were enabled to return to school, 12 were failures and 4 experienced relapses after initial success; somewhat at variance with findings in this country(23, 24), no significant correlation

could be established between outcome and age. Creak and Ini's(25) study of the families of 102 psychotic children emphasizes the variety of manifest attitudes displayed by these parents, with 13 of the mothers described as warm and 59 as average in maternal characteristics; they conclude: "This study hardly supports the view that parental personalities and child-rearing attitudes as seen in our sample are a principal cause of childhood psychosis." Yet in the same year Kaufman and his associates(26) have proposed the thesis that a psychotic core is found in the parents of schizophrenic children as they study them clinically. How are these antithetical positions to be rationalized? Differences in methodology are clearly important; the former study proceeded by clinical interview in the course of diagnostic examinations, the latter by long-term psychoanalytic investigation. There may very well be important differences in the composition of the groups of "psychotic" children studied; I have elsewhere commented on the heterogeneity of the conditions clinically categorized as childhood schizophrenia(27). The problem, however, goes beyond these matters to basic conceptualizations and interpretations as to the kind of evidence that is considered admissible to court. For the moment, the clash of opinion must remain irreconcilable.

It has long been recognized that the public school system with its almost total sampling of the child population and its captive audience offers an unparalleled opportunity for investigations of epidemiology and prevention; only recently have large scale efforts to capitalize on this situation been undertaken. A recent issue of the *Journal of Social Issues*(28) reports a number of important studies. The St. Louis studies(29, 30) indicate that teachers' judgments and ratings of academic progress succeed in identifying disturbed children, although social class is clearly a significant variable in influencing both teachers' and mothers' ratings of children(31). Bower's valuable monograph(32) concurs in the important conclusion that teachers are effective case finders when a variety of indices including sociograms and rating scales are made available to them. (The methods developed by Bower represent a significant contribution in themselves). A somewhat discordant finding has been reported by Goldfarb(33). In the Baltimore study, major discrepancies were noted between teachers' and clinicians' judgments on the same group of children; although both sets of raters reported similar percentages of children as in need of treatment, in only a third of the cases were they describing the same children. It should be noted that there were important differences in method between the former studies and the latter; generalizations from data must be phrased in terms of the questions asked and the methods used at this stage of imperfection in our techniques.

MENTAL DEFICIENCY

The past ten years have seen a revival of interest in the care of the defective that invites comparison with the spurt of progress in the early years of the 19th century when the first systematic medical studies were undertaken. This era may differ somewhat in the extent of the impetus supplied by scientific technology which has made possible the specification of enzymatic and chromosomal aberrations. But it shares the humanistic motivations of the earlier period. Then it was the philosophy of the enlightenment and the doctrine of human perfectability that gave courage to those who attempted to teach the deaf, the blind, and the imbecile; now it is the democratic belief in the dignity of the individual and the inspired crusade of parent groups through the N.A.R.C. that leads us to reevaluate practices which had become static and rigid. The history of what has happened can provide clarifying perspective to what is happening.

Leo Kanner, a contemporary pioneer in reintroducing mental deficiency as an area of legitimate concern for psychiatry, has embarked on a series of scholarly studies to be embraced ultimately in a promised monograph which should provide a definitive history of the field. The first two fruits of this endeavor have appeared in print(34, 35). Johann Jakob Guggenbuhl founded the Abendberg, a Swiss institution for cretins, that was to be the inspiration for schools for defectives throughout Europe and America (34). To enter upon so difficult an enterprise called for single-minded dedication

and an evangelical spirit; the enthusiastic reception that greeted his efforts led Guggenbuhl to devote himself to spreading the new gospel to the neglect of his responsibility to his own charges. Just at the point when his career was at the Zenith, his clinical accomplishments and his own integrity were challenged; his Abendberg was closed by an official commission—but not before it had sparked world-wide efforts to educate the retarded. A paper on Itard, Seguin, and Howe(35) serves to remind us once again of the role of the physician as a crusader for human betterment as well as a scientist. These essays repay thoughtful reading; perhaps they can recall us to a function that all too few of us have been willing to undertake on behalf of the defective. They provide a noteworthy foundation for the Adolf Meyer Lecture of Sir Aubrey Lewis(36), an insightful discourse on the social and scientific aspects of contemporary attitudes toward mental defect.

Exemplary of the new psychological research into mental deficiency in England are three studies by Lyle (in a new and welcome Journal) upon the effect of an institutional environment on the verbal development of severe defectives(37-39). The performance of mongol and non-mongol defectives in an institution and in a day school have been contrasted. Whereas the non-verbal "mental age" of all groups was similar, the verbal scores for the day school groups, both mongol and non-mongol, were shown to be superior. Inspection of the mongol data indicated that these children had less verbal skills than the non-mongol defectives and that they suffered *more* retardation in the institutional environment than did the non-mongols. When an experimental group of 16 previously institutionalized defectives were transferred to a residential family unit and nursery program with a higher staff/patient ratio, they showed significant gains in intellectual development in comparison with a control institutional population. This stimulating effect of an enriched environment has been shown in other English studies(40, 41) which reinstate the findings of some pioneer American investigations of the '30s (42). A useful bibliography of current research in the United States may be found in a pamphlet issued by the Children's Bureau (43).

What factors influence the decision to institutionalize the defective? Parental rejection, I.Q., delinquent behavior, dearth of community services? In place of the clinical impressions we have had to rely upon in the past in order to essay an answer to this question, we now have a solid body of data provided by an excellent monograph on this subject by Gerhart Saenger(44). Personal and familial characteristics of retarded N. Y. city residents were contrasted for those in and those out of institutions. The finding that parental rejection is *not* a major factor is in itself a significant contribution that may finally lay the ghost of a widely perpetuated myth that makes even more difficult the plight of parents who must face this eventuality. The decision to institutionalize, the New York study demonstrates, relates to such considerations as: the severity of the retardation, low economic status and minority group membership, behavior difficulty (especially sexual acts), broken homes and parental inadequacy. Deficiency in community services is a determinant in the case of the severely but not the moderately retarded, since the latter are likely to be institutionalized for reasons other than the retardation *per se*. Collateral findings include the identification of Puerto Rican children committed as defective on the basis of incorrectly interpreted test findings that made no allowance for language difficulties!

Public policy toward mental deficiency continues to be influenced by deeply imbedded social prejudices and to reflect antiquated medical principles. Our responsibility as physicians clearly extends to our role as citizens. Much remains to be learned but surely it is inexcusable that what we now know is not being fully used.

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OCCUPATIONAL PSYCHIATRY [1]

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Smith(1) in an article entitled "The Promotion of Health," points out that an increasing number of people are becoming exposed to an industrial environment and industrial medicine has to play more of a role in promoting the health of the nation. In industry today, injury, illness, frustration, and unhappiness bring suffering to employees and their families and problems to management. Some of the circumstances which give rise to these mishaps could have been anticipated and avoided. Their prevention is the concern of industrial medicine, which draws attention to the existence of such circumstances and encourages action to obviate them. In order to deal with the multiplicity of problems, he feels a team approach is the most efficient.

VOCATIONAL REHABILITATION

Progress continues for the vocational rehabilitation of those persons who have had an emotional upset or a mental illness. Last year the Executive Committee of the President's Committee for the Employment of

[1] Appreciation is due the other members of the Committee on Occupational Psychiatry, APA, and American and foreign correspondents. Special acknowledgment is due to Dr. John Pixley, Department of Psychiatry, University of Cincinnati, School of Medicine for valuable help in the preparation of this article.

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the Physically Handicapped passed a resolution to study the problem of incorporating promotional responsibilities for aiding the employment of those persons with histories of emotional or behavior problems into its program, and asked Dr. Ralph T. Collins "to chair a subcommittee of the Medical Committee to make recommendations as to how best to carry out the intent and principles of the Executive Committee's Resolution." This Subcommittee on the Emotionally Restored reported the following decisions to the Executive Committee through its chairman, *viz.*:

1. The mentally restored and the mentally retarded should be included in the philosophy and the program of the President's Committee. The emphasis might well be placed on the mentally restored as these, by and large, are more employable, educable, and trainable. Also, there are many agencies, voluntary and others, who are working with the mentally retarded up to the age of 18.

2. There is discrimination against the mentally restored relative to employment and reemployment. This is a manpower problem and a humane one as well.

3. The gathering of data pertaining to this subject, the constant suggesting to Governors' Committees and grassroots local Mayors' Committees that attention be paid to this subject, and the "cautious approach" and the "deliberate speed" attitude, are recommended.

4. Suitable articles regarding this subject might be published in *Performance* and NEPH pamphlets. We agree that there is much education to be done at all levels of management, among the work force, within unions and the medical profession, including, of course, the psychiatrists and the mental hospitals.

5. We agreed that more effective communication should be developed between the psychiatrist, the plant physician, and the supervisors, all working toward the welfare and benefit of the employee and eventually the industry.

6. We agreed that although each case must always be individualized on a face-to-face and fact-to-fact basis, and that motivation of each mentally restored employee must be considered, this is of no avail unless top management has decided that the handicapped shall be employed and that all levels of management be so appraised and educated to the belief that "it really pays to hire the handicapped."

7. We agreed that the President's Committee can aid the mentally restored and the mentally retarded in its informational, educational, and promotional programs. We recommend that the President's Committee include these workers in its overall program.

The Executive Committee accepted the report and agreed to incorporate the mentally restored and the mentally retarded into its promotional program. Dr. Collins was asked to become a member of the Executive Committee and to chair a permanent Mental Health Committee. This committee would have equal standing with other standing committees of the President's Committee. Major General Melvin K. Maas, Chairman of the President's Committee for the Employment of the Physically Handicapped has issued invitations to individuals in many fields of endeavor to become members of this committee. The first meeting of this committee was held at noon at the Willard Hotel, Washington, D. C. on Friday, November 18, 1960. The staff of the President's Committee has been expanded and work has already begun for this purpose.

During this past year, there has been an increase in programs devoted to the employment and reemployment of those persons who have had a mental illness. These have been sponsored by voluntary mental health agencies, governmental agencies and hospitals and Governor's and Mayor's Committees on the Employment of the Physically Handicapped. It is to be noted that the word physically has been dropped from the official title of a few of the Governor's Committees.

Simon(2) broadens the definition of psychiatric rehabilitation to include the therapeutic use of the self. This relationship is designed to meet the patient's needs enabling him to communicate well with others and in general increasing his participation in the social group. Rehabilitation includes "every aspect of the treatment of the whole person." It is depicted as including 6 areas of living (psychological, vocational, family,

socio-recreational, educational and community). Simon feels the community physician will play a very important role in fostering a continuum from mental hospital–integrated living and the industrial physician "can play a very crucial role in psychiatric rehabilitation."

Hewitt(3) points out that the tradition of state supported mental illness in large institutions is now being replaced, to a large part, by small short term outpatient clinics, day and night hospital facilities, half way houses and the like. He also speaks favorably of the increasing role played by vocational rehabilitation programs. As trends: the industries and unions are now often underwriting the cost of mental illness for their workers and in this state of change, he makes a plea for coordination in planning future mental health facilities.

EDUCATION AND TRAINING

Increased educational and training opportunities are now available in residency programs in the United States. Among these elective experiences are rotation through the occupational psychiatry program at the Department of Psychiatry of the University of Cincinnati and at the University of Minnesota. Both programs are stimulating active interest of eligible third year residents. Cincinnati has started its occupational psychiatry training with two residents currently participating on a half-time basis; Minnesota with one for one-half day per week. For the fifth year at the Menninger School of Psychiatry second year residents are offered a 12 session seminar in occupational psychiatry; 14 residents are currently enrolled. The Cornell University two-year fellowship program continues active for post-residency training.

For physicians in occupational medicine, week-long annual seminars are conducted by the Division of Industrial Mental Health of the Menninger Foundation. One hundred physicians have attended thus far. Psychiatry is included in many training programs in occupational medicine such as those at the University of Cincinnati, at New York University, and in the preventive medicine courses of the American College of Physicians. Psychiatry training for physicians in single companies appears also to be an increasing trend.

1960 also demonstrated an increase in training programs for executives and management personnel in understanding emotional problems in the work situation. Such courses are sponsored by academic, community and business organizations. More than one hundred such programs were conducted. A few illustrative ones were those of the Conference on Mental Health in Industry at Allenberry, Pennsylvania, those sponsored by Temple University Department of Psychiatry, the Division of Industrial Mental Health of the Menninger Foundation, the University of Arizona, Arizona State University, the University of Colorado, the Phoenix Institute of Neurology and Psychiatry, the Connecticut Mutual Life Insurance Company, and many local, state and national mental health societies.

NEW APA PUBLICATIONS

In 1960 the APA Committee published a pamphlet *Troubled People on the Job* designed for those in supervision and management in industry. Sales exceeded 22,000 copies during the year. The committee also began publication of a quarterly *Newsletter* summarizing current activities in the field both in this country and abroad.

EXECUTIVES AND MENTAL HEALTH

Habbe(4) reports on some 200 executives from 80 corporations who, in discussing the aims of business, came to the conclusion that total health (mental and physical) of the corporation was very important. The conclusion that the cost of neglecting mental health was probably about four times that of caring for it adequately was expressed. Resolutions were passed to attempt to utilize more psychiatric manpower toward this end, and relieve the load which was falling on relatively few.

Hayes and Hayworth(5) in an article entitled "Psychiatric Breakdown in Higher Executives" state in substance that of the factors commonly supposed to be important in executives' breakdowns only work was doubtfully ascribed significance, while fatigue as such did not emerge as an important part of the stress involved. No

special type of psychiatric illness seemed to occur in the executive group and such significant differences as are to be seen reflect, if anything, the "better" type of personality possessed by the executive group (as compared to the worker control group). The authors plan to follow up with a more definitive study on the above model.

An article entitled "The Health of the Executive"(6) which appeared in the transactions of the association of industrial medical officers, examines critically the hypothesis that today's executives are suffering unduly from 3 categories of disease (cardiovascular, psychosomatic and psychoneurotic) and finds little clinical evidence to support that they are. The question is raised as to the amount of stress being placed on the second tier of management and if actually this is not the most logical population to suspect. Here also, there is no definitive evidence. The suggestion is made that a critical evaluation of 20th century living, including job evaluation may be productive.

Robinson(7) in an article entitled "Stress" enlarges Selye's definition of stress to "anything which threatens the biological integrity directly (physical or chemical) or indirectly (symbolic meaning)." It therefore denotes combined subjective and objective physiological and psychological reactions which in certain conditions may become pathological. The objective assessment of stress is not adequate for indicating early manifestations; we must rely on clinical judgment and subjective experiences. He then makes a strong point for some of the beneficial aspects of stress and debunks the implication that stress is "bad." He discusses stress diseases, pointing out that the starting point is a "threat to security" and followed by a chain reaction with organic and psychological feedbacks. In concluding, the author warns us against being too quick to treat only the organic aspects of stress diseases.

AUTOMATION

In the *Bulletin of Hygiene*, April, 1960 (8) there is a report to a study group of the mental health problems of automation. This study, using as a definition for automation, "the coming together of several relatively independent streams of technical progress" outlines 3 distinct fields: 1. Highly developed mechanization; 2. Control of machines by machines; 3. Development of electronic digital computers. The 3rd field is singled out as being to mental health as important as the industrial revolution was in upsetting the status quo. People live and adapt within groups, and threat of change may produce reactions which are as real as if actual changes have occurred. The two resulting problems, actual change, and anticipation of change must be taken into consideration and techniques to handle them smoothly must be evolved if we are to maintain efficiency and worker health. There is a need for more research into the adaptation of the individual, the family, and the community to automation.

INDUSTRIAL ACCIDENTS

Deverell(9) briefly gives some historical background, then discusses various theories. (a) Law of Poisson: Not felt to be accurate, even though certain individuals do exhibit accident proneness, this would not eliminate accidents. (b) Heinrich's pyramid and law of chance. The author utilizes this theory as important in accident prevention. (c) Accident causation: Felt to be about 75/25 with management at 25%. This indicated that the employee must be motivated for safety. Under the heading of human failing accidents, the author feels the main failure is management's; by not properly training, using propaganda or incentives effectively or making employees obey self discipline they are responsible for this category of problems.

He then discusses environment and personal factors, pointing out men work as they live; that physical conditions do affect accident rate and that if proper supervisory levels are maintained size of factory has nothing to do with number of accidents. Research into fatigue and accidents is inconclusive and absences following accidents are individually determined. In this respect, a limit setting homogeneous group can be effective however.

FOREIGN CORRESPONDENCE

Dr. van Alphen de Veer has suggested that the following publications should be

included in this review of occupational psychiatry :

1. H. R. Wijngaarden : The influence of work on mental health. (Maandblad v. d. Geestelijke Volksgezondheid nr. 15.)

2. Dr. J. J. A. Vollebergh : Human Freedom in an organised industry. (Maandblad v. d. Geestelijke Volksgezondheid nr. 15.)

3. Dr. P. J. Willems : The adaptation of work to men. (Maandblad v. d. Geestelijke Volksgezondheid nr. 15.)

4. Dr. G. J. Fortuin : Psychological aspects of the adaptation of work to the worker. (Maandblad v. d. Geestelijke Volksgezondheid nr. 15.)

5. A. H. Hutte : Design of a worksociatry in the Netherlands. (Mens en Onderneming nr. 13 1959 en nr. 14 1960.)

6. Co-operation between industrial doctor and industrial psychologist. A symposium. (Tijdschrift voor Sociale Geneeskunde, Jaargang 38 nr. 22.)

Dr. van Alphen de Veer read a paper entitled "Mental Health in Industry" at the 13th annual meeting of the World Federation of Mental Health at Edinburgh, Scotland in August, 1960. In the opening remarks of this paper he made the following points :

Mental health means : (a) full development of human abilities ; (b) growth to emotional maturity ; avoidance of neurotic tensions ; (c) ability to handle relationships with individuals and groups in accordance with existing cultural patterns(10).

Here is a definition given by Prof. Koekebakker in 1952 on the Seminar of the W.H.O. at Leiden, that will be useful to us in our study of the mental health situation in industry. Speculation about the full development of human abilities and the advance to emotional maturity immediately raises the question as to what extent, in general, work in industry offers an opportunity for these things. Or, on the other hand, does work in industry constitute an obstacle to them ? The question cannot really be formulated in such simple terms, for technological development and the development of the human personality are two entities with different dimensions. Nevertheless, to create as favourable a climate as possible for the worker, and to organize his work in such a way as to promote mental health, these constitute a task of the highest importance in the field of mental hygiene. Again, how far can we hope to succeed in these endeavours and what is the correct way of approaching the problems involved ? Here, it is clear, we are standing on the verge of an extensive territory that has already been reconnoitred from all sides. Much has been done to investigate mental health in industry, and a great deal has been written about the subject, and this makes it difficult to give a succinct review of the present position. Still, it seems to be high time that the matter was raised once again.

RESEARCH

The Industrial Mental Health Project of the University of Cincinnati, College of Medicine has completed its first phase of study, a follow-up of employees who had been seen in industrial psychiatric conferences over a period of ten years. The most striking finding statistically was the highly positive correlation between measures of improvement and the degree to which recommendations of the conference had been carried out. The team is now collecting data on problem cases (absenteeism, accidents, interpersonal difficulties and frequent dispensary visitors) and on controls, with split half comparison, of the sequels following psychiatric recommendation, with the sequels following psychological testing and collecting data on problems without mental health interview(11).

Accidents are the concern of a report by Collins(12) in which it is noted that accidents showed a positive correlation between ethnic group, age (highest in 26-35 group, lowest in over 56 group), day of week (highest on Monday). Modlin(13) reports on patients referred to the Menninger Clinic with a presumptive diagnosis of "traumatic neurosis." Focus is on clinical analysis of the psychological stress factor in the traumatic neurosis syndrome frequently seen following accidents. Two sets of circumstances are identified as operative in initiating the syndrome : 1. The patient-to-be experiences a brief forewarning of impending disaster, or, 2. The accident occurs suddenly, unexpectedly and without forewarning. Leopold and Dillon(14) summar-

ize their findings of 47 cases of whiplash injuries of the neck, pointing out that evaluation of the psychiatric factors is difficult because of the frequency of concomitant cerebral concussion.

The successful placement and adjustment of cardiacs continues to be the concern of industry. Gelfand, *et al.*(15) report findings on 117 cases seen in a Cardiac Work Classification Unit. The unsuccessfully vocationally adjusted group was composed of predominantly obsessive-compulsive personalities. Schedules for collection of data and a method of approach to the problem by a team of specialists are described. Weaver (16) gives an analysis of his experience in the selective placement of cardiacs in a large refinery. The program utilizes the matching of the workers capacities with the physical demands of the job.

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SOCIAL PSYCHIATRY

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INTERDISCIPLINARY APPROACH

Interdisciplinary research projects in which psychiatrists work with social scientists seem now to be a well-established and increasingly valued principle of approach to the problems confronting psychiatric theory and practice. Results of such teamwork are illustrated by the reports of the Joint Commission on Mental Illness and Health, comprising several important publications(1, 24, 30, 57). The bulletins issued by the World Federation for Mental Health in conjunction with World Mental Health Year activities(72), and the publications of the World Health Organization(60, 67, 73, 74, 75) exemplify international cooperative endeavors.

MANPOWER STUDIES : THE PROFESSION, ITS INSTITUTIONS, AND THE COMMUNITY

Clearly, the manpower crisis facing psychiatry and the other mental health professions in the more highly industrialized societies has had its great share in stimulating such interdisciplinary research activities. A number of studies suggest the importance attached to manpower considerations in the problems facing psychiatry now and in the forseeable future(1, 7). Albee, in his study for the Joint Commission, concludes that "we should at this time withdraw some money and manpower from the support of treatment services (with full realization that

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this means further neglect of already poorly cared for patients) and use the competent manpower and money for research on causes and more effective treatment of mental illness." Patterns and problems concerning recruitment of psychiatric manpower, and associated problems of the medical curriculum at both undergraduate and graduate levels, thus constitute a major area for investigation with the obvious hope that satisfaction of the critical need for rational design and planning of manpower resources will be achieved(28, 36). Corollary to this is the urgency of the need for planning institutions and community services that will more effectively serve needs for psychiatric services. Continuing reports of psychiatric institutions, such as that of a state hospital viewed as a small culture or society (related, to be sure, to the values and organizing principles in the society or dominant culture at large), are thus not only of great potential value for effecting reforms in the particular institution being studied, but also in setting into clearer perspective the problems of over-all professional and social planning(22, 43, 47, 64). The rapid growth and development of the "open door" policy in large mental hospitals, and increasing interest in the elements of a therapeutic community and in such services as psychiatric home-care programs, halfway houses, and other specialized aftercare facilities attempting to cope with the rehabilitation problems of former patients, psychiatric units in general hospitals, community mental hygiene clinics, and special services for particular groups in the population (*e.g.*, the aged, alcoholics, criminal offenders), represent converging patterns of the effects of social psychiatric research efforts, changing exigencies of psychiatric manpower resources, and the increasing awareness of the general public of its mental health problems (8, 9, 25, 32, 38, 41, 59). Another publication of the Joint Commission documents, via the results of a detailed interview schedule administered to a probability sample of the entire American population, "what Americans think of their mental health"(30). This outstanding study reveals that the major national issues, the international situation, the threat of atomic fallout, the housing shortage, crowded highways, *etc.*, appeared to be an important source of worry to few people whereas everyday personal tribulations with which people are faced (health, families, children, money, job situations) constitute the common concerns of most people. Assuming this information to be valid and reliable, one can only wonder at the social and psychiatric implications in such a seemingly basic unconcern with momentous problems—or the massive denial of them.

TRANSCULTURAL AND CROSSCULTURAL PSYCHIATRY

The contents of the *Transcultural Newsletter*(71) help provide a picture of developments in psychiatry in various cultural settings around the world. Opler's reader (54) in "Culture and Mental Health" also serves as a good bibliographic source to studies in diverse cultures. The reprinting in this volume of classic papers by Wittkower and Fried, Lin, and others, as well as a wide representation of papers published for the first time, offers a sound introduction to this important literature. In the rapidly developing unindustrialized nations, where the need for sanitary reform and adequate nutrition in public health practice far transcends in importance the considerations of mental health resources at present, it is encouraging to witness, nevertheless, an enlightened concern for use of epidemiological studies to plan the orderly development of psychiatric services. One may justly hope that this will help avoid some of the costly errors in the development of psychiatric practice in Western Europe and America during similar periods in their technological growth. The variety of studies accumulating from the four corners of the world is gratifying(5, 6, 12, 20, 21, 33, 34, 35, 42, 58). A classical problem in transcultural psychiatry which continues to be explored is the relationship of migration to mental health(11, 19, 23, 26, 45, 48, 49). The rapid cultural and social changes in many parts of the world associated with population movements, technological developments, former colonies achieving independence, rural-urban migration, *etc.*, constitute a natural "experimental opportunity" for epidemiological investigations. Earlier studies in migration in relationship to mental health

were used in this country to justify restrictive legislation on immigration. Such use of tentative conclusions in the service of discriminatory social legislation would now seem clearly to have been unwarranted (66).

It is well to bear in mind that in the absence of adequate systems of classification and nomenclature, many crosscultural studies tend to be hopeless conglomerations of disparate observations. Without more systematic and standardized methods of reporting results, it seems premature at this point to hope that factors of universal significance in the etiology of mental disorders (non "culture-bound") will be separated out by such studies (13, 67, 73).

EPIDEMIOLOGY AND PSYCHIATRY

The methodology which promises to provide a uniting element in social psychiatric research is that offered by the application of the epidemiological approach (long recognized as the basic tool of preventive medicine) to the study of psychiatric problems.

Several important statements on the general applicability of epidemiological methods and their limitations in psychiatry have appeared during the past year. Two of these are excellent and succinct summaries published under the auspices of the World Health Organization, and another of the volumes in the Joint Commission series also summarizes the progress to date in applying the general principles of the epidemiological method to mental disorders (17, 27, 52, 57, 60, 73). These reports, taken together, represent a basic and indispensable statement in this field and present recommendations pregnant with possibilities for productive research.

It is obviously impossible to review in this brief survey all the recent publications demonstrating the application of epidemiological methods in psychiatric research. We can only cite several to illustrate the catholic nature of these applications. The first volume of one of the most ambitious undertakings to date has now been published, which outlines the general research design and formulates the major hypotheses of this monumental project (44). The succeeding volumes presenting the results obtained in the Nova Scotia study are anxiously awaited for the wealth of information they will undoubtedly provide in respect to incidence and prevalence of mental disorders in the study population, support for hypotheses concerning the relationship between social disorganization and the occurrence of illness, and pointing the way to further investigations. The other major epidemiologic survey awaiting publication, the "Midtown Manhattan" project of Rennie, Srole, *et al.*, will also undoubtedly add greatly to our existing fund of knowledge in similar dimensions.

Actually, studies utilizing the epidemiological method in psychiatry have been performed for many years. It is to be hoped, however, that the clearer formulation and wider dissemination of the principles of epidemiology among the mental health professions will result in more careful and specific planning of research projects.

Follow-up Studies: For example, follow-up studies in psychiatry (which until just recently have been all too few and far between) represent an ideal opportunity for use of an epidemiological model. The study by the late Dr. Norris of "Mental Illness in London" represents one of the more sophisticated efforts in dealing statistically with a cohort of hospitalized patients (53). This and other studies of follow-up, be they of a specific diagnostic entity or syndrome (2, 39, 46, 61, 62, 65), of specific treatment modalities (14), or other similarities in the group being studied, holds the greatest promise for refining our present notions of the natural history of psychiatric disorders (56, 63). The follow-up study application of epidemiological techniques (as distinguished from the non-longitudinal or cross-sectional survey applications) also should yield important clues concerning etiology. Such studies as those of Wilner, *et al.* (70), in the field of housing in relation to social and health adjustment, are also worthy of particular note.

Innate and Acquired Etiological Factors: Another facet of application of epidemiological methods is demonstrated by studies in genetics and the social structure of small groups, especially the family. An excellent review of the status of knowledge in genetics is given by Böök, in a book edited by Jackson, and in another publication (10,

37). In Jackson's collection are to be found other important statements regarding the etiology of schizophrenia (including his own critical review of the field) from the standpoint of family dynamics, sociology, biochemistry, physiology and psychology.

Work on the families of patients with mental disorders utilizing the index case approach, exemplified by the studies of Lidz and Fleck(37) and others(15, 29, 31, 68), represents still another aspect of epidemiological research. The reader edited by Bell and Vogel provides an excellent selection of writings pertaining to the family (4).

Studies of social factors influencing length of hospitalization(16, 18) and specific events in the life histories of patients(3) illustrate other features of application.

The studies of Pasamanick, *et al.*, regarding such variables as prematurity and seasonal variations in births(40, 55) have recently been discussed and challenged in a provocative critique of their statistical methods and assumptions(69). Aside from the specific points at issue in this particular controversy is the sobering realization that once results have been published as "facts," they tend to assume a peculiar life of their own, becoming divorced from the body and context of the investigation from which they derived.

SOCIAL THEORY AND MEDICAL SOCIOLOGY

Analogous to the interdisciplinary excursions by psychiatrists into the social sciences is the venture of social scientists into the world of medicine and psychiatry. The social scientists' approach to medicine, initially concerned primarily with the field of psychiatry, is rapidly extending to other areas of medicine : its practice, institutional roles, and structures. The importance of this development as a potential in providing feedback of psycho-social information to the medical professions in general can hardly be overestimated.

In the enthusiasm for gathering data which is best exemplified by the ever-widening application of the epidemiological model, it becomes increasingly important not to overlook and relegate to dusty corners the great germinal ideas in classical sociology and psychiatry. Perhaps the danger of doing so is less in psychiatry, where in a half century's growth of schools of psychoanalytic thought abundant numbers of hypotheses and theories to be tested have emerged in the areas of personality development, etiology of illness, and the relationship of the individual to society. Mills, in presenting and stressing the case for restudying the classical tradition in sociology (50, 51), has revitalized the contributions of sociological theorists as a legitimate stimulus for creative explorations in social psychiatric research.

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CLINICAL NEUROLOGY

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CIRCULATION

Brain injury predisposes to early cerebral strokes(6). An elongated carotid is apt to kink when the head is turned to that side (172). In Carotid Sinus Syndrome, in addition to slowing of the pulse, the intra-arterial pressure falls and with narrowed cerebral vessels may cause focal symptoms(90). An electrocardiogram should be done in all stroke patients to identify any underlying recent myocardial infarct(177).

Occlusion of the internal carotid is confirmed by ophthalmodynamometry, 80 percent of the time(203). A bruit is audible over a stenosed carotid in slightly more than half the patients(166). Compression of the carotid low in the neck causes syncope about this frequently with proved occlusion of the opposite carotid(204). Absence of the carotid pulse in the pharynx is a little more reliable. Diminished carotid pulsation in the neck is least reliable. A bruit is sometimes audible at the base of the neck in vertebral occlusion(166). Nearly half of the patients with carotid occlusion have a partial Horner's sign(89).

Half the patients with basilar artery thrombosis give a clear history of previous ischemic attacks, and circum-oral numbness is often described(4). Large lesions of the tegmentum between the third and seventh nerves cause coma ; lesser lesions may cause akinetic mutism(41).

Persistent coma and severe underlying cardiovascular disease worsen the prognosis in a stroke(89). However, even bilateral carotid occlusion does not necessarily give a bad prognosis for life(78). Of 100 consecutive cerebral artery thromboses, 10% returned to their former work ; one-third to part-time work ; 10% died in hospital, and one-third died within two years(47). Impaired visual spatial discrimination in right sided lesions may interfere more with vocational rehabilitation than aphasia does(101).

A third of patients dying with peptic ulceration have had a stroke(44). Lesions of the orbital and posterior parts of the frontal lobe are associated with renal tubular necrosis, perhaps due to renal vasoconstriction(210).

Atheromatous lesions of the circle of Willis in 1,175 autopsies were most frequent and severe at the upper and lower basilar, bifurcation of the carotid, first third of the middle cerebral and first part of the posterior cerebral arteries. Forty to eighty were the ages most affected ; however, 2% of those under 40 had severe atherosclerosis and 10% of those over 80 had none(10). Emboli, thrombi, plaques or intimal fibrosis were found on careful inspection of sulcal vessels, supplying all but two of 21 infarcts limited to one or adjacent gyri in the absence of deep lesions or trunk artery occlusion(229). Arab(7) describes an homogenous refringent protein deposit in the muscularis layer of stenosed or dilated cerebral arteries of 50 patients, mostly hypertensive.

Only when there are ominous signs in malignant hypertension should blocking agents be used, particularly if there is occlusive vascular disease, for thrombotic epi-

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sodes are apt to occur as the blood pressure falls. Patients having small strokes are not apt to succumb to massive intracerebral hemorrhage, and are not helped by lowering the blood pressure(84).

Even keeping the room cool by air conditioning when it is hot and humid increased survival from ischemic brain lesions in rats (222).

When capillary pressure fell due to carotid artery occlusion and vision was gradually fading, McCullock(143) was able to restore blood flow and save sight by lowering intraocular pressure, first with acetazoleamide and then, cyclodiathermy.

Although the prothrombin test is highly reproducible, periodic monitoring is essential, particularly if patients are bleeding. Increasing microscopic hematuria is as significant as an increasing prothrombin time (147).

Ouren(162) has devised a new "thrombotest." Crude cephalin, thromboplastin, absorbed bovine plasma and calcium chloride form a single stable reagent which measures the coagulation factors of the intrinsic and extrinsic clotting systems in capillary blood, citrated blood or plasma. Matthews and Walker(140) confirm its superiority to the Quick test.

No benefit was seen in the half of a group of 51 patients with acute non-embolic, nonhemorrhagic strokes randomly assigned to anticoagulant therapy, and three died of massive intracerebral hemorrhage(139). Carter(33) found no benefit from anticoagulants in sudden, complete paralysis, but there seemed to be some benefit with ingravescent and incomplete paralysis. In a controlled study of patients with myocardial infarcts on token and adequate anticoagulation, the latter failed to prevent further infarcts or death, and hemorrhage was a serious and not infrequent complication(135). Denny-Brown(50) recommends anticoagulants only for embolism and for thrombosis would try to correct the low blood pressure, anemia, cardiac or vascular disease. Carotid surgery is successful only in otherwise healthy patients whose carotids are stenosed, not occluded(53).

In subarachnoid hemorrhage, the severity and duration of disturbed consciousness is the most reliable prognostic sign, though old age and hypertension increase the risk(18, 170). Of eight patients with ruptured anterior cerebral aneurysm, 7 had infarcts in the vessel's distribution(21).

Of 244 patients with primary intracerebral hemorrhage, 20 percent had no blood in the cerebrospinal fluid(145). Angiograms were normal in 53, so ventriculography should be done if there is doubt. Prognosis was poorer with hypertension and coma. Deep hemorrhages had the highest mortality. Early trachestomy was helpful.

Intracerebellar hemorrhage causes brain stem, rather than cerebellar symptoms (174). Vertebral angiography is not helpful. Three-fourths are seen in ventriculograms. McKissock(144) recommends evacuating the clot.

Cortisone treatments of half of 40 patients with polyarteritis nodosa possibly postponed death, but did not affect the outcome at three years. For a few it caused distressing complications(132). On steroid therapy only 2 of 23 eyes affected in giant cell (temporal) arteritis regained useful vision. However, steroids should be used and continued for two years if partial vision remains (184).

In congestive heart failure, mental symptoms are ominous, reflecting decreased blood flow and oxygen uptake(196). In cerebral degeneration decreasing oxygen uptake parallels dementia(117).

Migraine can be deadly(8). "Ophthalmoplegic migraine" is usually due to an aneurysm of the circle of Willis. Paroxysmal tachycardia is common in migraine families. Ergotamine may cause cardiac arrest in the patient with a slow pulse. Interstitial nephritis leading to uremic death is increasing, perhaps due to prolonged use of phenacetin by these patients. A reliable ergotamine tartrate makes treatment available and convenient, with side effects about equal to parenteral ergotamine(77, 207).

INFECTION

Tuberculous meningitis can be reliably differentiated from other lymphocytic meningitides by a Bromide serum-to-cerebrospinal fluid ratio below 1.4. Counting radioactivity in blood and cerebrospinal fluid samples 48 hours after giving 50 microcuries of Br^{82} by mouth gives clear cut results

independent of protein and cells in the cerebrospinal fluid(42).

Ophthalmological complications are equal whether or not tuberculous meningitis is associated with miliary tuberculosis. Nystagmus and pupillary disturbances are the most ominous complications(150).

The best treatment of tuberculous meningitis is intramuscular streptomycin, PAS and isoziazid(230). Steroids should be added in children under one year old or unconscious on admission(128) or for papiloedema(150).

In leprosy, a disorder of lipid metabolism was found in the essential cell(91). Diaminodiphenylsulfone (DDS) is the best drug for leprosy, but Ciba 1906 and Etisul are powerful adjuvants usable for a few months (46).

Pneumococcal meningitis is so fulminating it still causes 50 percent mortality in adults(180). It should be suspected in diabetes and skull fractures. Early craniotomy for decompression is often required, as well as intramuscular penicillin and intravenous sulfonamides.

Recurrent attacks of bacterial meningitis may be the only sign of skull fracture(22). Sharp-object wounds of the eyelid may penetrate the roof of the orbit, particularly in children(79). One ml. of fluorescein intraspinally and observation of nose, ears, *etc.* under ultraviolet light helps to identify cerebrospinal leakage(107).

Cerebral dysfunction 10 days after infection of ears or respiratory tract in children may indicate brain abscess(158).

In leptospirosis headache persisting beyond a week usually means an immune reaction meningitis which will be self limited as are the other brain and nerve symptoms at this time(54).

Boshes(23) has reviewed current management of fungus infections of the central nervous system.

In Toxoplasmosis, the parasite can be isolated from blood and occasionally cerebrospinal fluid in the acute stage. The dye test, hemagglutination and complement fixation tests become positive in that order. The skin test is positive after the acute stage. Pyrimethamine (a folic acid antagonist) increases the effect of triple Sulfonamide treatment eightfold, but it may depress the bone marrow(178).

Syphilis should not be diagnosed on the basis of one specimen of serum(131). Biologic False Positive (BFP) reactions become more pronounced during intercurrent infections. BFP's occur more than twice as often in infants whose mothers have BFP than those whose mothers have syphilis (152).

In neurosyphilitis the treponema pallidum complement fixation tests (tpcf-50) is as sensitive as the TPI test(24). Tests using Reiter protein antigen, which is derived from a tube cultured spirochete and therefore cheaper, are as specific as the TPI test, but may be non-reactive in some older syphilitics(30, 173).

Two rapid reagin tests on unheated sera (RPRUS and USR) are as accurate as the VDRL(25), and can use the same blood specimen as is drawn for blood sugar if sodium fluoride is used as anticoagulant (98). A fluorescent treponemal antibody test (FTA) depends on an additional antigen similar to reagin(154).

The majority of 1,489 children with poliomyelitis had an acute onset and continuous course. One-fifth of the infants had no increase of cerebrospinal fluid cells, and half in all age groups had no increase of cerebrospinal fluid total protein at the onset of paralysis(123).

Mass use of vaccine at the time of an epidemic has no effect on the course of the epidemic. One injection now gives 50 percent protection, but four are needed for 95 percent protection. By increasing potency and the use of adjuvants, Salk(188) forsees a single injection technique.

Oral administration of attenuated virus has been effective and uncomplicated in children in Philadelphia(164), Louisiana (68), Mexico(187), Estonia-Latvia(186), Belgian Congo(118, 169), and Cuba(57). Intercurrent viral or other infections were not aggravated. Best results occurred when temporary dominance of the polioviruses was achieved by giving large doses to the whole community at the season when other enteroviruses were least active. Previous Salk vaccination does not interfere. Ninety-five percent of adult non-reactors

were immunized to Types 1 and 3, but only three percent to Type 2(185).

Although genetic and serologic tests have found the viruses stable through several human passages(109), neutralization tests demonstrated changes(67) and neurovirulence for monkey spinal cord had developed in excreted viral progeny of a Sabin strain (153).

Vaccine protection against polio is making paralysis due to other viruses more conspicuous(119). But three-quarters of those with paralysis still have polio(148).

Spencer, *et al.*(208) discusses the cardiovascular complications of severe polio.

The cerebrospinal fluid is a better source of virus during the acute phase of aseptic meningitis, but may be sterile 6 days later (189). Complement fixation tests now reliably identify the viruses as compared to neutralization typing(74).

Forty different viruses were isolated from 713 patients(148). Enteroviruses were commoner in late summer and fall, lymphocytic choriomeningitis in winter and mumps in winter and spring. Death or serious sequelae most often resulted from arthopod born viruses and herpes simplex. Tuberculosis and fungus infection had a less acute febrile onset.

Mumps meningoencephalitis was established by isolation of virus from cerebrospinal fluid or hemagglutination tests in 38 percent of 56 patients(146). Sixteen had no salivary gland involvement. There were no serious sequelae. A third may have headache and nervousness a year later(156).

Herpex simplex can be activated by adrenalin(192).

Tissue culture and antigen precipitation techniques support the theory that Herpes Zoster is a reinvasion of tissues by latent chicken pox virus. Zoster complicates chronic rather than acute leukemia, particularly after radiation, alkylating agents or steroids perhaps due to a decrease of gamma globulin(197).

Although some reviews(60) say infectious mononucleosis causes many neurologic symptoms, Hoagland(87), applying rigid criteria, found them rare.

Brierly, *et al.*(28) report a subacute encephalitis of late adult life affecting mainly limbic areas of the brain. Three patients were depressed, became progressively demented and comatose. One had temporal lobe seizures, but none had myoclonus or athetosis as in the Dawson-van Bogaert type. No virus studies were made. No virus was found in four cases of subacute necrotizing encephalitis(79).

METABOLISM

A case of Wilson's Disease with normal serum copper and ceruloplasmin supports Uzman's suggestion that the ceruloplasmin deficiency is secondary to a defect of protein metabolism producing proteolytic residues with high copper affinity(182). Cartwright, *et al.*(34) found poor correlation of ceruloplasmin levels and duration or severity of symptoms. Ceruloplasmin was low in normal newborn infants, an infant with idiopathic hypercupremia, some patients with sprue and a few with nephrotic syndrome. There was no improvement in Wilson's disease patients when ceruloplasmin increased in pregnancy, with estradiol or injections of ceruloplasmin. Ceruloplasmin deficiency can now be detected by placing a drop of serum on specially treated paper(1), or using starch gel electrophoresis(43).

Treatment to minimize copper absorption and increase its excretion may improve neurological symptoms but the liver is unchanged(190). One patient's fulminating course was aggravated by BAL and versenate(88). Four of five Wilson's disease patients had hypercalciuria, without hypercalcemia or increased alkaline phosphatase (126).

Hepatic stupor is more closely related to liver failure than to abnormal portal circulation(227). Chronic hypoxia interferes with the liver's ability to detoxify ammonia(5). The respiratory alkalosis of advanced cirrhosis may be compensatory to protect brain function(171). At autopsy, one of three cases of paraplegia in shunt encephalopathy had astrocytosis and demyelination of the pyramidal tract in the cord(233, 234).

Because non-hepatic patients with asterixis due to chronic pulmonary, renal, cardiovascular disease or prochlorperazine toxicity were confused, Conn(36) ascribes the flap to malfunction of the reticular formation.

Ellenberg(55) comments on a tendency for diabetic neuropathy to follow some stress such as surgery by one to four weeks, and compares this to the latency of infectious polyneuropathy, *etc.* Cord tumor should be ruled out by myelography if cord bladder or bowel appear in diabetic neuropathy(224). Larsen(115) has published a color photographic atlas of diabetic retinopathy.

Ophthalmoplegia develops and clears in relation to the thyrotoxic state of a tenth of thyrotoxic patients(193). Muscular weakness and atrophy, mainly proximal, developed in half of 42 hyperthyroid patients. Creatine was increased in all, and EMG changes were myopathic. Neostigmine did not alter fatigability. All responded to treatment of the thyrotoxicosis, most rapidly to iodine(72). Fifteen years after surgical treatment of Graves disease, ophthalmoplegia was unchanged in half, better in one-quarter, and worse in one-quarter(80). Twenty-eight patients in 18 families with goitre had congenital perceptive deafness, and in some cases defective vestibular function(64). Treatment of myxoedema stopped the convulsions of one patient(61) and cleared the ataxia of six(95).

Weakness was caused by hypokalemia in 10 patients with renal tubular disease(161).

The behaviour of two phenylpyruvic children, 4 and 7 years old, with I.Q.'s of 67 and 93, improved on a phenylalanine restricted diet(211).

NEOPLASM

Electronmicroscopy of brain tumors by Luse(130) gives added reason to believe glioblastoma multiforme is a grade 3 or 4 malignant astrocytoma. In oligodendroglioma mitochondria are usually few and small, but may be as large as nucleoli. The cells of meningioma of endothelial type resemble arachnoid cells. Neurofibromas have interlacing bands of collagen.

In a similar study(159) of tumor vessels, there was evidence of increased metabolic activity of the endothelium, an increase in periodicity of the collagen fibrils and numerous shunts, glomeruli, lacunae and aneurysmal vessels in glioblastoma multiforme. The vessels of astrocytomas and oligodendrogliomas were normal. Columnar growth of metastic bronchogenic carcinoma caused the vessels to be parallel.

At the Montreal Neurological Institute, 534 primary tumors of the brain, excluding 112 of the pituitary, were treated with tumor doses of 5000 to 6000 over 50 days via multiple portals(26). Most of the tumors had not been completely removable by surgery, yet all did better than those with similar tumors treated by surgery alone. There was no evidence of damage to the unshielded pituitary of 30 children. There were no corneal opacities. Only one adult retreated through the same portals had histologic evidence of post-radiation necrosis. Operative decompression is advised before radiation of inaccessible brain stem tumors.

Increased mortality in thiamine deficient mice with induced gliomas was due to increased bleeding in the tumor, rather than altered malignancy(27).

Three-quarters of 93 patients with acoustic neuroma had unsteady gait, half had vertigo, 80% had spontaneous nystagmus at the limits of binocular gaze, at first to the unaffected side. Audiograms were rarely normal, and only slight to moderate deafness suggested that the tumor was not an acoustic neuroma. Adequate masking avoided false, conduction type responses. The tumor involved the end organ of the 10% who had recruitment. In all of the patients caloric responses were abnormal, using 30° C. and 44° C. irrigations(52).

The natural history of 108 neuroblastomas varied greatly with tendency to hemorrhage and variable malignancy in different parts of the same tumor. Fifteen, most starting before two years, have survived 5 to 18 years(45).

Of 5,778 patients with malignant lymphomas, 795 had neurologic complications (49). Nitrogen mustards followed by x-ray was the treatment of choice for spinal lesions. Laminectomy should be done only for compression fracture. Although 90% of lymphoma patients and 50% of leukemic patients had cerebral symptoms, only 11 patients had intracranial tumor, all but one by extension. Ninety percent of the local involvement of cranial and peripheral nerves was by malignant lymphoma and half improved with radiation. Infections of

the central nervous system seemed related to lowered immunity, and all those with exotic infections died. Herpes zoster, in 162 patients, was not helped by radiation of the spine. Intracerebral hemorrhage occurred in 146 patients. Although vessel walls may be invaded in crises, bleeding was usually the result of thrombocytopenia so that iatrogenic marrow depression must be avoided.

Meningeal leukemia of high morbidity seems related to poor penetration of the blood brain barrier by the drugs and is apt to occur during a hemotologic remission (48, 62, 198). It occurred in 25 of 150 patients with acute leukemia. Steroids and radiation of the skull benefited 75 percent. The danger of marrow depression prevents radiation of the spine, but intrathecal methotrexate produces a 4 to 6 weeks remission.

Of 33 patients with Hodgkins disease, the 13 who had pain after drinking alcohol had more eosinophils and more often had spontaneous pain, mediastinal involvement and leucocytosis(93). Eosinophil infiltration of a squamous carcinoma of the cervix was associated with alcohol induced pain(86).

Cerebral angiomas so increased venous pressure that compression of the jugular veins low in the neck caused rapid, prominent, usually ipselateral swelling of the vein in all but one of 17 children(221). A bruit was audible over two of three spinal angiomas of children(141).

Five of 8 patients with symmetrical peripheral sensory-motor neuropathy associated with myeloma or malignant lymphoma had numerous metastases infiltrating the nerves (13).

In 363 consecutive cases of carcinoma of the lung, the brain was examined in 338, and 38 percent had intracranial involvement (81). The cell type was not related to frequency of intracranial metastasis.

The effect of various intensities of gamma radiation on the brain have been measured in terms of time to cause EEG abnormality (217).

Tumor cells were found in the cerebrospinal fluid of 12 of 64 patients with histologically verified tumors, and in 8 were the first proof of metastasis(11). Marks and Marrack(137, 138) suspend the sedimented cells from the cerebrospinal fluid in 3 or 4 microliters of bovine albumin and 1 percent EDTA. The suspension is smeared on cover slips as for a blood smear and stained with Leishman's. The abnormal cells tend to be large and occasionally syncitial. The nuclei are large, sometimes multiple or mototic, or have large nucleoli.

BASAL GANGLIA DISEASE

Opisthotonus, torsion spasms, oculogyric crises, trismus, other painful muscle spasms and akathisia continue to be reported not only from dimethyl and piperazine derivatives of phenothiazine, but also reserpine and deanol(31, 66, 110, 200, 220). They may occur when the drug is started or the dose increased, or may be precipitated by an acute infection or dehydration. The phenothiazines produce a purple-brown color when 1 ml. of 10% ferric chloride and 1% hydrochloric acid is added to 3 ml. of the patient's urine. Mild cases responded to barbiturates. Severe cases may require parental caffein or diphenhydramine (Benadryl).

Most of 40 patients with basal ganglia diseases had increased urinary catechol amines(12).

Parkinson patients with abnormal EEG's have a poorer prognosis for surgical treatment(58). Five hundred chemothalomotomies by Cooper(37) produced enduring relief of tremor and rigidity in 85% and oculogyric crises were ameliorated. Below age 65, he would wait to operate until ability to earn a living is threatened. Mental deterioration, psychosis and pseudobulbar palsy are absolute contraindications. Physiological old age and advanced medical disease are relative contraindications. Mortality was 2.4%. Paralysis was permanent in 3%, transient in 6% and other transient symptoms occurred in 10%. Similar observations are made regarding thermal lesions(212). A case is reported where the ventral medial globus pallidus has been destroyed without effect on Parkinsonism, but the chemical had passed along the anterior commissure to cause necrosis on the other side(226). The psychologic effects of stereotactic lesions are non-specific and not related to the area coagulated(155).

Essential tremor of 210 patients stemmed from 9 ancestors(115). The onset was usually at 50 years (10 to 70 years). Onset and

progress varied in the same family. The tremor was sometimes greater in one limb. Seventeen patients had some rigidity.

Twenty-four cases of tremor are now reported from New Guinea, 170 miles from the Kuru area(228). There are associated pyramidal, extrapyramidal or cerebellar symptoms.

MULTIPLE SCLEROSIS

In a review, Schumacher(194) reports a higher than chance incidence in relatives. Although fewer cases start in warm climates, climate does not affect the course. Average life expectancy is 21 years. There are more recurrences and shorter survival with late onset. A case that is mild for the first five years is apt to remain mild. Of patients ambulatory when first seen, 40% are still ambulatory 15 years later, 25% are helpless and 33% are dead. The best treatment is supporting and sympathetic, avoiding fatigue in the active stage(112).

Careful culturing of spinal fluid for 2 to 6 months was negative for spirochetes(142). Infrared spectrophotometry of serum lipid in Multiple Sclerosis was normal(65). Electrophoretic partitioning of cerebrospinal fluid and serum proteins of 23 Multiple Schlerosis patients was normal except in six patients with a short course and abnormal gold sol who had increased gamma globulin and decreased albumin in the cerebrospinal fluid(29).

Cooper reports relief of cerebellar tremor by chemothalomotomy in 10 of 90 patients (38).

OTHER CENTRAL NERVOUS SYSTEM DISEASE

Victor, *et al.*(219) describes 50 alcoholic patients with an apparently malnutrition syndrome of gradually increasing ataxia, most conspicuous in the legs. A degeneration of the cerebellar cortex of the anterior vermis and hemispheres is best demonstrated on sagittal section. The olives and less consistently the medial cerebellar and the vestibular nuclei may be affected.

Carbon monoxide may be demonstrated for up to 3 weeks after chronic poisoning due to binding with other tissues(71).

Narcoleptic patients may have a partial Pickwickian Syndrome(202).

Magnesium deficiency may cause depression, irritability, ataxia, weakness, convulsions, low voltage ECG and focal EEG slowing(83).

Calcium EDTA is the best treatment for lead intoxication, but it must be used cautiously in children who may need cerebral decompression by craniotomy or intravenous urea(225).

Fifty cases are now known of progressive ataxia of infancy and early childhood with telangiectasea of the conjunctivae and skin of ear and nose(195).

Retinitis pigmentosa and congenital deafness seem to be different manifestations of the same gene and many patients have labyrinthine disorder and mental deficiency(82).

In Hurler's disease, but not in normal relatives, reticuloendothelial cells are found to contain inclusion bodies with a central zone staining as a mucopolysaccharide and a peripheral unstained zone(96).

In Gaucher's disease, the increased serum acid phosphatase seems to be distinctive in its reaction and so may be of diagnostic value(215). The defect of cerebroside formation appears to be catabolic(216).

At autopsy a patient with congenital universal insensitivity to pain had no abnormality of structures concerned with pain(14).

Despite digitation of the skull on x-ray, 37 cases of craniostenosis were asymptomatic and mentally normal. Papilloedema and optic atrophy are absolute indications for craniotomy(76).

Surgery may arrest the progression of symptoms of spinal dysraphism(94). The "split notocord syndrome" of developmental posterior enteric remnants may have associated visceral abnormalities of the chest and abdomen(16).

Convulsions during the first days of life of 374 patients were the result of major brain pathology. Those with subdrual hematoma were often precipitated by external stimuli and preceeded by vomiting. Cold often caused convulsions, but there were no febrile convulsions in the group, nor in children with fevers as high as 108°F.(40).

Toxemia of pregnancy, prolonged labor or anoxia at birth did not result in more convulsions in 762 at age 10 to 14 than in controls(102).

Birth trauma to the vertebral arteries

may cause ischemic changes of the brain stem important in cerebral palsy(232). Difficult breech delivery or vertex delivery with the arm over the head may injure the spine at the cervico-thoracic junction with non-progressive motor and sensory signs to this level, but not necessarily mental retardation(121).

Cervical discs compressing the cord-like tumors, may require operation, but with lesser lesions, or when the diagnosis is in doubt, patients are better given a three-month trial with a Minerva Collar(32). Cinoradiography confirms the inadequacy of other collars(99).

Lumbar discs, when they cause loss of bowel or bladder control require urgent surgery(199).

Serum transaminase is too insensitive and nonspecific to be useful in diagnosis of neurological diseases(213).

CRANIAL AND PERIPHERAL NERVES

One in 25 chronic alcoholics with peripheral neuropathy gradually develops blurred vision, a central or centrocecal scotoma and usually pallor of the disc. The papillomacular bundle degenerates in the optic nerve, chiasm and tract. Most improve on food and B vitamins, but the exact nutrient responsible is not known(220). A similar lesion is reported in B_{12} deficiency(59).

Retinal hemorrhages are common in megaloblastic anemia, but rare in normocytic anemia, suggesting that anemia is not alone the cause(39). Retinal exudates and hemorrhages after massive gastrointestinal bleeding are related to the brief fall in blood pressure, not the anemia. Focal anoxia of the retina may be the cause(165).

Glew(73) reviewing observations on papilloedema proposes that it is due to optic nerve edema associated with cerebral edema.

When a child suddenly develops a central scotoma pneumoencephalography may be needed to exclude tumor. But for optic neuritis, no treatment is helpful. Fifteen of 19 recovered completely(103).

Complete congruity of visual fields following 24 temporal lobectomies suggests that incongruity in cases of tumor may be due to pressure on the optic tract. The fibers looping most anteriorly represent the part of the field nearest to the upper vertical meridian(223).

Vertical eye movements are mediated by bilateral parmedian pathways just ventral to the median longitudinal fasciculi(15).

Diabetes and Multiple Sclerosis each account for one-sixth of abducens paralyses. They clear in an average of 3 months, independent of treatment. One-tenth are due to syphilis and without prompt penicillin therapy, they are permanent(201).

Nystagmus of labyrinthine origin (motion sickness) is suppressed by antihistaminics, but not hyposcine, largactil or nembutal (100). In appraising positional nystagmus, the patient's head must be turned far to either side and hyperextended(191).

In a controlled study, potassium and sodium was found to have no relation to Meniere's attacks(75). Nicotinic acid kept 48 patients free of relapses for 3 to 6 years.

Strict criteria for diagnosis of Guillain-Barre Syndrome are outlined by Osler and Sidell(160). If symptoms were still progressing, steroid therapy may help(134).

Even if the whole area of pain is not anaesthetized, the pain from a more proximal lesion is relieved longer than the duration of the nerve block(104). Cooling with ethyl chloride or freon is an effective counter-irritant to relieve some post herpetic neuralgias(213).

Pilocarpine was the only beneficial treatment of the tricresylphosphate myeloneuritis of Morocco(70).

The amount of hypertonus and spasm are more reliable guides to the severity of tetanus than the duration of the latent period. Tracheostomy, curarization and artificial respiration are advisable in severe cases. A toxic myocarditis as in diphtheria is apt to cause fatal hypotension(2).

Polyneuropathy in rheumatoid arthritis carries a serious prognosis. It is not always related to steroid therapy. There is no effective treatment(85, 209).

Peripheral entrapment neuropathies of the lower extremities have been reviewed by Kopell and Thompson(108).

MUSCLE

Myasthenia Gravis has been reported in one of monozygotic twins(3). The abnormally long and multiple endings at the

motor end plate in myasthenia described by Coers have been confirmed(19, 133). Electronmicroscopy of the myoneural junction disclosed seven layers of pores, perhaps for released acetylcholine(20).

Most of 65 myasthenic patients reach their maximum requirement of medicines in the first year(167). Instillation of cholinergic drugs in the conjunctival sac lessens ptosis and diplopia in a few patients without ill effects(120). The ganglionic blockade by monoamine oxidase inhibitors is discussed by Gertner(69). A new oxime has an additional atropine-like action(125).

Kreel, *et al.* report that thymomas are three times as apt to be malignant in myasthenics as in non-myasthenics. X-ray treatment before thymectomy tends to make control more brittle. Pre-operative tracheotomy is advisable and the patient should be carried on the minimum of medication to cover respiratory needs and so avoid cholinergic crises.

We really need a method for estimating intra-muscular electrolytes to determine whether muscle membrane permeability is altered in myotonia(163). Lowered serum potassium is not effective in control of myotonia(124). Hyperostotic changes were noted in the skull of many patients with myotonic dystrophy(35).

The weakness of progressive muscular dystrophy is apt to cause a hypoventillation syndrome(105). Cardiac involvement is not related to the severity of the skeletal muscle disease(92). In pseudohypertrophic muscular dystrophy, the first changes are vacuolization of the sarcoplasmic reticulum (118). In the hereditary dystrophy of mice, breakdown begins in the myofilaments (183) and labelled glycine studies indicate an accelerated turnover of muscle proteins (113). In a controlled study of 33 muscular dystrophy patients, Vitamin E had no effect (17).

CLINICAL EXAMINATION

Meyer and Barron(149) have shown that Brun's "frontal ataxia" is really frontal lobe apraxia. There is apraxia of all leg movements, particularly bilateral movements. There is rigidity, gegenhalten and difficulty initiating movements. Hypokinesia and bradykinesia may even reach catatonia. Not all have foot grasp. (There is not the sensory loss of parietal apraxia.)

Somatic sense of depth of space is distinct from touch and surface space perception, and appears to be a parietal lobe function(175).

Tapping the flexed index finger on the thumb at the interphalangeal joint as quickly and precisely as possible is a helpful test of coordination(63).

In non-diabetic patients, the reinforced deep reflexes of the legs are absent in one percent of patients over or under 60 years old(56).

An elaborate electromyographic study indicates that the Babinski sign is the result of encroachment of the receptive field of the normal flexion reflex on that of the normal extension reflex(114).

Cortical lesions causing a positive opticokinetic response are parietal(206).

CEREBROSPINAL FLUID

On electrophoretic fractionation of cerebrospinal fluid gamma globulins (serum proteins were normal) in Multiple Sclerosis and Neurosyphilis, the increase was mainly in gamma 1, 2 and 3. In subacute sclerosing encephalitis, it was mainly in gamma 4 and 5(129).

Only prolonged elevation of blood sugar affected cerebrospinal fluid glucose levels (136). The disappearance of sugar from cerebrospinal fluid in meningitis appears due to the increased phagocytic activity of the white blood cells(168).

Yellowing of the cerebrospinal fluid is not diagnostic of the cause of the patient's jaundice, except that with pleocytosis it suggests leptospirosis(181).

PROCEDURES

Phenol myelography can relieve spasticity, but damage to sacral roots paralyses the sphincters and dorsal root damage leads to decubiti. It should not be used in active Multiple Sclerosis and only circumspectly in ambulatory patients(127, 157).

Spinal complications or aortography are due to arterial access of dye to the cord parencyma. They are avoided by using the prone position, avoiding barbiturates and using small injections of Hypaque(206).

Five hundred cerebral angiographies

with Hypaque at Mt. Sinai Hospital caused only 6 percent complications(205). At the Mayo Clinic(9) 9 percent had permanent and 11 percent transient complications.

Motor nerve conduction velocity is normal in polio but lowered 40 percent in polyneuropathy(97).

The urinary tract can be kept sterile by strict aseptic care of the drainage system (51, 151).

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ALCOHOLISM

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Jellinek(3) considers that there is a physiological dependence in alcoholism similar to that found in morphine addiction and in barbiturate addiction and that the convulsions of the alcoholic are commonly brought about by withdrawal of alcohol. He feels that further study of the evidence on both sides should be carried out but concludes, "The alcohol withdrawal syndrome is so well documented that its existence can hardly be denied and under certain conditions . . . it may culminate in delirium tremens."

Krystal(4) in a study of 700 patients with delirium tremens made careful physiological studies including the electrolyte levels in the blood serum, such as sodium, chlorides, potassium, and magnesium. He felt that one of the important precipitating factors in delirium tremens was the withdrawal of alcohol which was relieving the patient's anxiety and depression. He felt that delirium tremens was a syndrome caused by the following factors : (1) water deficiency, (2) salt deficiency, (3) magnesium deficiency, (4) inability to wall off invading organisms, (5) brain swelling, and (6) the pharmacothymic crisis.

Friedhoff and Zitrin (2) compared two groups of cases of delirium tremens. Both groups received vitamins, intravenous fluids, and where necessary, antibiotics. Group I received chlorpromazine and group II received paraldehyde. The symptoms subsided on an average of 8 days for group I and 6 days for group II. It was concluded that paraldehyde appeared responsible for the more rapid recovery in group II. Chlorpromazine was felt to be valuable in abolishing nausea and vomiting.

A Norwegian study of delirium tremens (6) found that there were increased blood serum levels of glutamic oxalacetic transaminase (GOT) and ornithine carbamyl transferase (OCT) and felt that this was due to liver pathology. However, the authors felt that increased GOT and OCT could not be considered as the main cause of delirium tremens since some of their cases did not show increase of these two substances.

A long French article(5) entitled "Injectable meprobamate ; effective treatment of states of acute alcoholic delirium" reported the previous high mortality rate in delirium tremens and its decrease in 1958-59 to one-fifth of what it had been in 1951. After experimenting with various drugs and finding chlorpromazine and reserpine unsatisfactory, the authors tried meprobamate and found it most satisfactory. It is noteworthy that the authors in addition to meprobamate by intramuscular injection used vitamin B-1 and B-12 and strychnine and intravenous 25% alcohol in glucose solution in gradually reduced amounts. Barbiturates were not given. There were no fatalities in the 83 cases treated and the condition cleared up in 3 days in all but one of the cases. The authors state that under this treatment restraint was not necessary. Isolation, however, was employed and good nursing care and constant observation of the patient was emphasized as an important factor in recovery.

A number of other reports stress the authors' opinions upon specific drugs in the treatment of acute alcoholism and delirium tremens. Orland and Camden(9) used triflupromazine hydrochloride in the treatment of acute alcoholics in a county or city prison. They found that 212 of 252 prisoners treated by the oral administration of 25 mg. of the drug every 4 hours, and in some

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cases running the total dosage up to 400 mg. in 24 hours, showed marked improvement. Forty patients showed no improvement or their symptoms became worse.

Baroody(1) reports the use of trifluoperazine (Stelazine) in 23 cases of delirium tremens and felt that it was of value. He stated that further studies were needed to determine how valuable this drug is. Since these cases were given chlorpromazine or promazine intravenously in the beginning and received fluids, glucose, vitamins, magnesium, diuretics, tranquilizers and steriods, the role of trifluoperazine is as yet undetermined.

Much has been written about the effect of tranquilizing drugs in potentiating the effect of alcohol. Meprobamate, although a hypnotic and not a tranquilizer, has been shown to potentiate the effect of alcohol. Recently a study(12) was made on the effect of paraldehyde. Albino male mice given alcohol and then an hour later given paraldehyde showed a marked increase in the toxic effect of alcohol. The authors question whether it is safe to give paraldehyde to individuals under the influence of alcohol.

A recent study(10) of patients given an intravenous injection of amino acids concludes that amino acids accelerate the rate of alcohol disappearance in the blood.

Miller and Dvorak(7) report a method of group conditioning in which 4 patients were simultaneously conditioned to aversion to alcohol. They concluded that group conditioning is not only possible but has certain advantages over individual conditioning.

Minto and Roberts(8) report experimental work and prolonged use of Temposil in 27 patients and compare its use with that of disulfiram. Temposil does not produce the unpleasant side effects seen with disulfiram, and so patients will take it more regularly. When alcohol is taken within 24 hours of having taken Temposil, an acetaldehyde reaction occurs within 15 minutes. All patients in this series showed some degree of this reaction, whereas alcohol-disulfiram reactions are less predictable. The Temposil reactions are less severe than those with disulfiram, and they can be rapidly minimized by intravenous injection of an antihistamine, whereas disulfiram reactions are not easily modified. Patients(6) who took alcohol within 24 hours of taking Temposil could reduce the intensity of the symptoms by walking about briskly. Only 1 patient in the series could not have walked thus about because of the severe reaction. Temposil's main disadvantage is the increased desire to drink in the early stages of alcohol-Temposil reactions, but this can be overcome by close observation of the test reactions before beginning long-term use. The data showed that 100 mg. of Temposil are better than the 50 mg. suggested by other workers.

Scott(11) in a study of 122 male alcoholics and 21 female alcoholics, all of whom were divorced, concluded from the patients' discussions of their sex lives that sexual immaturity, not homosexuality, is the basic characteristic of the alcoholic. The alcoholic, although actively heterosexual, cannot take on the responsibility of a permanent relationship.

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GERIATRICS

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The results of a 3-year survey, carried out by the New York State Department of Mental Hygiene, of over 2,000 persons past age 64 in New York City old age homes, nursing homes and state hospitals, have indicated that 88% of those in nursing homes and 94% of those in state hospitals had chronic brain syndrome of some degree (11). The severe form predominated in state hospital patients, of whom 89% (many doubtless had improved since admission) were still eligible for certification. These data belie claims of "overuse or abuse of state hospitals, on either medical or moral grounds, through the unwarranted admission or retention of aged patients."

A 2-year study (1957-59) of 191 Saskatchewan geriatric patients, 137 admitted to a mental hospital, 54 to a general hospital psychiatric unit, showed the disproportionate number of senile and physically ill persons in the state hospital admissions, of whom only 62 (45%) improved enough to warrant discharge compared with 53 (98%) of the general hospital group. At the 1959 follow-up, 53 (39%) of the mental hospital, compared with 9 (16%) of the general hospital group had died. Thus even with vigorous care, mental hospital patients with physical disease died more precipitously than did their fellow patients in a hospital more suited to general treatment(16).

In the Geriatric Research Project at Langley Porter Neuropsychiatric Institute, psychiatrists and social scientists have reported on 534 patients aged 60 and above, first-time admissions in 1959 to the psychiatric ward of San Francisco's city-county general hospital, of whom two-thirds were placed in state mental hospitals. This group was compared with another group of 600 mentally healthy persons living in the community, matched as to age, sex and living arrangements. According to preliminary analyses, average mental ability of the group showed a progressive decline in the hospital group from age 60 (the earliest age measured), whereas no such decline was seen until age 75 in the community group. In the hospital group 62%, compared with 33% in the community group, had incomes of only $1500 or less. Most striking, in the hospital group, was the high incidence of serious physical illness; 70% required daily care just for physical disability, and, in more than 40%, admission to the psychiatric ward had been precipitated by acute behavioral disturbances in response to acute physiologic disorders. As a group the 534 hospital patients were seriously ill psychologically or physically—more often both.

Institutes and divisions of gerontology have been set up in recent years in 16 universities, some of them with research programs.

In a long and interesting report from England, Roth(13) has discussed the high proportion of somatic illness in geriatric mental patients as a whole.

Blain(2) reported to a group of general medical practitioners on an American Psychiatric Association survey of 3,500 professional persons, many of whom stressed that doctors need to treat the aged as intelligent human beings, to understand psychological medicine, to be aware of the patient's financial problems, and to refer him when necessary to social agencies.

From his extensive survey of mental health research, Deutsch(6) has noted that the use of open wards and new drugs has helped reduce the total state hospital population for 3 years, 1955-58; but this reduc-

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tion, though significant in the face of an increased general population, amounted to less than 1% in 1958.

Recommendations of various new drugs continue. Wayne(17) considers analeptics as sometimes of value; their essential ingredients, metrazol and nicotinic acid, are aimed at increasing blood supply and oxygenation. In depressions of the aged, electroconvulsive therapy effects prompt symptomatic relief. Tranquilizers, properly used, may decrease the aged patient's anxiety and agitation, but their excessive use may deprive him of the self-realization still possible. The dosage should commonly be reduced as time goes on, according to Howell (12); in many cases the use of tranquilizers has masked serious underlying diseases. Sanen(14) warns that tranquilizers may increase the difficulty of evaluating the clinical symptoms of ischemic heart disease in senile and psychotic patients. A British report(8) rates ischemic heart disease as the second most disabling disease in men over age 70.

The amount of hormone released by the thyroid gland, though it decreases with age, remains constant in the blood; and the giving of thyroid substance to the aged does not make them spry, but only nervous and trembly; hence the lethargy of the aged is not due to hypothyroidism(10).

The preliminary results of a study of intensive psychotherapy for a 9-month period with 12 patients aged 75 to 95 were encouraging, even in those with evidence of organic changes(4).

Dr. Anna Aslan in various reports(1) on procaine therapy (a 2% procaine solution, with a Ph of 3.3 to 4, called H_3), first given to 189 aged institutionalized persons in 8 to 9 monthly courses with interim rest periods, claims to prolong life and to relieve many disorders, from arthritis to failing memory. Its use as a prophylaxis is now being investigated. Several authorities have strongly questioned these claims; Droller(7) considering the evidence inconclusive, and both Freeman and Insley(9) expressing doubt of the drug's efficacy. The Swiss investigator, Verzar(15), has found no differences in life-time, general appearance and biological age of certain fibers between rats treated 14 to 30 months with large doses of procaine and untreated rats from the same litters; but these experiments "do not preclude a possible stimulating influence of procaine in humans." A Russian, Dr. J. F. Zhordaniya(19) reported that the revascularizing of a senile dog's ovaries restored fertility in 25 enfeebled and aged dogs, though no attempt was made to breed them. The experiment was called a step in the direction of prolonging life.

Bourlière(3) includes in a report on gerontological activities in France a study on the duration of sleep in 380 healthy persons, aged 30 to 80: the average value was 7 hours, 20 minutes; the duration remained remarkably constant throughout life for those not regularly using a narcotic, and was little affected by the subject's sex and intellectual background. A study of attitudes toward retirement in 264 white collar and manual workers gave poor health and fatigue as main reasons for stopping work in half the group; hence a postponed age of retirement would not greatly increase the economic benefits. Van Zonneveld(20) reports that about a third of Dutch men aged 65 are still at work, and some employers offer part-time work to pensioners. Italy early in 1960 held its first examinations for a university degree in gerontology and geriatrics.

Williams(18) from tests of 100 British persons past age 65 would assess a wide variety of abilities, emphasizing individual test performances and not the total score. Clark(5) has concluded, in a series of physiological and psychological measures of 102 subjects aged 20 to 70 that, "at the level of this analysis, aging occurs along a single dimension, measured best by blood pressure, lens accommodation and sound threshold and less well by ability and speed tests."

Tests of a cross section of 250 elderly persons in the Duke University geriatric study have indicated that in a person aged 60, with an IQ of 116 or above, mental ability drops very slightly with aging; with an IQ of 86-116, it declines gradually and moderately; with an IQ of 85 or less, it drops markedly.

The American Association for the Advancement of Science held a symposium on aging late in 1959. *Handbook of Aging and the Individual*, edited by J. E. Birren, 1959,

is a comprehensive survey of recent research and other information on aging. R. S. de Ropp's *Man Against Aging*, 1960, is a competent review of the topic for the layman.

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EPILEPSY

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PHYSIOLOGY AND BIOCHEMISTRY

"Isolated" cortex became hypersensitive to acetylcholine(1) (the suggestion that followed was that just such a partial isolation of the cortex secondary to trauma, tumor, *etc.*, may be an important factor in the production of seizures). Stimulation of the posterior hypothalamus decreased cortical seizure threshold(2) and stimulation, particularly of the rhinencephalon, produced seizure activity in the hypothalamus (3). Various "autonomic" responses were obtained by stimulation of human anterior cingulate area(4) but they were so rare and inconstant that the authors questioned whether they represented "normal" functions of this area ; in the monkey, epileptic foci in the amygdala produced a different type of seizure (convulsions of limbs and trunk, head turning away from the lesion) than foci in the hippocampus ("twitching" of the upper lip, head turning to side of lesion)(5). Based on clinical material, ictal depression was more frequently associated with diffuse temporal lesions whereas ictal fear was more frequently associated with temporal cortical lesions(6), particularly on the left(7) ; seizures arising from medial and superior border of the cerebral hemispheres frequently produced auras of visceral, genital or anal sensation, postural movements, and sensory or motor phenomena of the lower extremity(8). Of considerable interest were the different types of responses obtained in monkeys by electrical self-stimulation of implanted electrodes (9) : self-stimulation of the anterior thalamus produced an increase in self-stimulation and then spike-wave activity in the septal region, self-stimulation of the posterior hippocampus produced a seizure burst and then increased self-stimulation, and self-stimulation of the amygdala produced rapid self-stimulation until a seizure burst occurred to be followed by prolonged absence of self-stimulation.

Among the biochemical studies published last year, some were : experimental focal seizures are associated with an immediate decrease in the epileptogenic area of glutamic acid, glutamine and glutathione but no significant change in gamma-aminobutyric acid (GABA)(10) ; increase potassium or decrease calcium concentration in-

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creased GABA in vitro(11) while ammonium hydroxide increased GABA in vivo(12, 13); a mirror focus to an experimental epileptic focus had a decrease in the blood-brain-barrier to GABA(14); and GABA action is probably not merely a simple blockade of excitatory activity(15, 16, 17). In contrast to the concept that "all seizures are one"(18), Stone, *et al.*(19) review showed how a number of different convulsants have different basic physiological or metabolic actions.

SYSTEMIC CHANGES ASSOCIATED WITH SEIZURES

Cerebrospinal fluid (c.s.f.) glycoproteins have been reported as normal in epileptics (20) or as normal in "genuine" epilepsy but increased in post-traumatic epilepsy(21); the transaminase was variously reported as elevated in patients with grand mal epilepsy (22) transiently increased after a generalized convulsion(23, 24) and increased with seizure activity(25); c.s.f. gamma-globulin was found normal in patients with petit mal but slightly elevated in patients with grand mal(26); c.s.f. malic dehydrogenase was lowered but not significantly in patients with seizures(27). A seizure or series of seizures increased c.s.f. ammonia(28), decreased serum-c.s.f. barrier to protein(29), produced a significant transient increase in a "bradykenin-like hypotensive polypeptide" in the brain(30), transiently increased and then transiently depressed protein-bound iodine(31), increased plasma catechol amine concentration if the seizures were not modified by succinylcholine(32), produced no change in brain amine oxidase content(33), produced ventricular dilatation as seen on pneumoencephalography (34), and altered specific areas of the adrenal cortex(35, 36). A convulsion may produce a significant myoglobinuria(37). The serum of epileptics was more toxic to experimental animals than that of controls(38, 39, 40, 41). Metastases from experimental cancer in rabbits were increased by electric convulsive therapy(42).

ETIOLOGY

Incidence of seizures in patients with various conditions was reported as: 42% (43) or 28%(44) after head injury, 95% with cerebral paragonimiasis(45), 44% with microcephaly(46), 6% with progressive muscular atrophy, 29% with Oppenheim's disease, and 6% with myasthenia gravis(47), 27% of idiots and imbeciles(48), 30% of children with chronic lead poisoning(49), 13% of children with central nervous system lupus erythematosis(50), 50% with cerebral sequelae of air embolism(51), and 5% of psychotics admitted to Peking Mental Psychopathic Hospital(52) or 6% of an English mental hospital population(53). Focal seizures may occur 2 to 4 years after recovery from tuberculous meningitis(54). A study of 15 cases of seizures occurring during influenza suggested that the infection may precipitate convulsions in susceptible individuals but that the effect of the infection is only temporary(55). Ten out of 88 patients who had temporal lobectomies for psychomotor seizures were found to have congenital cerebral arteriovenous malformations(56); tumors accounted for 57% of the small focal lesions found in the temporal lobe after lobectomy for psychomotor epilepsy(57). The first symptoms of a glioblastoma were either focal or generalized seizures in 9% of patients and, on the average, these seizures preceded the hospital admission for the tumor by a period of about 1 year(58); seizures of late onset were a symptom of a brain tumor in 22%(59) or 19%(60) or rarely(61); in children up to 15 years of age, seizures were frequent with supratentoreal, slow growing tumors(62); 89% of cases with seizures beginning in the foot had brain tumors(63). Muscle biopsies from 30 epileptic children revealed angiitis of small and medium calibre vessels in 7 cases(64); convulsions were part of the symptomatology in 4 out of 7 cases with noninfectious granulomatous angiitis(65). Among the less common causes of seizures that were reported were: Hypaque cerebral angiography(66), low G tolerance(67), pyridoxine dependency(68), scleroderma (69), folic acid given for the megaloblastic anemia due to phenobarbital(70), and poliomyelitis vaccination(71). There was a positive family history of convulsions in 15% and a positive past history of convulsions in 11% of a large group of patients with migraine(72). Kellaway and Druckman(73) suggested that all cases of "breath-holding"

seizures and episodes of unconsciousness associated with noxious stimuli are due to reflex cardiac arrest.

CLINICAL ASPECTS OF SEIZURES

Hunter(74) presented an historical review of status epilepticus; he suggested that the increase incidence of status is largely related to the use of active anticonvulsant drugs. Further series of patients with headache and/or abdominal pain as a form of epilepsy have been reported(75-82); these may respond quite well to anticonvulsive medication. Nystagmus may be a part of a petit mal seizure(83). The subject of epilepsia cursiva (running seizures) was discussed(84); the running may be preictal, ictal, or postictal. Two more cases of muscicogenic epilepsy with temporal lobe foci were reported(85, 86). There were two reports concerning reading epilepsy(87, 88); Critchley, *et al.*(87) suggested 5 different mechanisms that may produce this syndrome: (a) pattern vision akin to photic stimulation, (b) repetitive proprioceptive impulses from the eye muscles and possibly the lips, *etc.*, (c) attention to reading with exclusion of awareness of environment, (d) emotional reaction to subject matter and (e) conditioned response to the circumstances of reading. Television has been indicated as the precipitating factor of seizures in several cases(89, 90). Ionasescu (91) reported some interesting cases of paroxysmal disorders of body image; where the focus was in the parietal lobe rather than the temporal lobe, there was more likely to be involvement only of the extremities. Anastaspoulos, *et al.*(92) presented 3 female patients with temporal lobe seizures and endocrinopathy. There was an interesting report of 3 siblings all of whom had seizures in utero as well as in neonatal life (93).

PSYCHOLOGICAL AND SOCIOLOGICAL

Psychological tests found that patients with "nonfocal (centrencephalic)" epilepsy did more poorly on tests of attention than patients with focal (temporal and frontal) epilepsy and patients with bilateral, independent (EEG) temporal foci had somewhat lower memory quotient than those with a unilateral temporal foci(94). Children with an organic convulsive disorder showed greater variation in psychological subtest scores and a greater decrease in verbal I.Q. when retested than did children with a nonconvulsive organic disorder; normal children had higher I.Q.'s on initial tests and greater variation between verbal and performance I.Q. than was found in the other two groups(95). Lesions in the dominant temporal lobe were accompanied by difficulties in verbal recall while lesions in the nondominant temporal lobe were accompanied by impairment in comprehension of pictures; ablation of the temporal lobes for seizures accentuated these defects (96). Psychotic episodes associated with seizures were: (a) coincident with the seizure, *e.g.*, during "petit mal status," (b) during the postictal state, or, (c) in the case of temporal lobe foci, manifestations of "preseizure or subseizure excitation in the pararhinal structures"(97). Goldie and Green (98) presented an interesting patient whose seizures could be provoked by rubbing his face; suggestion under hypnosis or anticipation of stimulation could produce the same effect, *i.e.*, the psychological stimulus was just as effective as the actual rubbing. Flynn and Wasman(99) demonstrated that hippocampal discharge did not interfere with "learning." Several studies of the socio-economic effects of epilepsy suggested that factors other than the seizures per se were often very important in the patient's apparent lack of adjustment(100, 101). Caveness(102) presented the interesting results of a Gallup poll showing the improving attitude of the public toward epilepsy over a ten year period.

THERAPY

Koch and Woodbury(103) suggested that Dilantin increased the neuron's "sodium pump" in contrast to Diamox's decreasing the permeability to sodium so that both drugs may end up with a decreased intracellular sodium and increased intracellular potassium but they did so by different mechanisms. Strobos and Spudis(104) reported that Dilantin influenced the seizure threshold but not the spread of a seizure while phenobarbital acted by limiting the duration and spread of seizure with but little effect on the threshold; on the other

hand, both Dilantin and phenobarbital but not Tridione were reported to decrease electrically induced cortical seizures(105). Studies were reported on: Mysoline(106, 107), Phenurone(108, 109), Elipten(110, 111, 112), carbonic anhydrase inhibitors (107, 113-118), several succinamides(119-122), meprobamate(123, 124), phenothiazines(125, 126), Mesantoin(127, 128), Xylocain(129, 130, 131, 132, 133, 134), quinidine(135, 136), two Indian plants (Jatamansone(137) and acorus calamus linn(138)), Ro 1-8294 (4-phenyl-4-methylpyrrolidione)(139), 2-ethyl-cis-crotonylurea (140), alpha-amino-gamma-diphenylhydantoxylvaleric acid(141), neopentylallyl barbituric acid(142), several urazole derivatives(143, 144), Ethotoin(145), Posedrin (146) and Meratran(147). Buchtal and Svensmark(148) reported some interesting studies on the relation of blood levels of Dilantin and phenobarbital to their clinical effects. Experience with parental Dilantin was presented(149). ACTH was of value in the treatment of hypsarrhythmia(150, 151, 152, 153) and in some other cases of infantile epilepsy(154). Millichap(155, 156, 157) discussed the treatment of febrile seizures and offered Pyrictal as an effective agent. The additive effects of Dilantin plus several other active convulsants were discussed (158).

Dilantin was incriminated as the cause of a reversible paraparesis in a patient (159), lung changes akin to gingival hyperplasia(160) and a severe hemorrhage in a hemophiliac with gingival hyperplasia (161). Experimental Tridione nephrosis (162) and two further cases of Tridione nephrosis in humans were reported(163). Peterkin(164) listed the numerous types of skin eruptions associated with barbiturates and hydantoins. Further cases of megaloblastic anemia(70, 165-168) or aplastic anemia(169) due to anticonvulsant drugs were reported.

In regard to surgical treatment, good results were obtained in psychomotor epileptics by unilateral temporal lobectomy in: 2/3 of patients who did not have tumors (170), in 32% with bilateral temporal foci but with predominance on one side and in 10% with bilateral and about equal temporal foci(171). Epileptic foci were destroyed by the injection into them of radio-active gold or yttrium(172); specially placed subcortical lesions were reported to help some patients with petit mal(173); treatment by pneumoencephalography was reported to produce a failure to improve in only 7 out of 31 epileptics(174).

Under the heading of miscellaneous reports might be included: (a) Murphy's paper(175) that related the basis for the adoption of 19 different saints as patrons for epileptics and (b) various studies on prognosis, *e.g.*, *good* with mid-temporal foci (176), when focal or temporal lobe seizures start in early childhood, when centrencephalic seizures start between the ages of 5 and 9 and when the EEG is normal(177) and *better for medicinal treatment* when the EEG has bilateral synchronous abnormalities, seizures start after the age of 1, and when there was not a definite organic etiology nor neurological signs(178).

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PSYCHIATRIC SOCIAL WORK

DANIEL E. O'KEEFE, PH.D.[1]

During the past year the demand for psychiatric social workers continued to grow. Due to the increased tempo of research on mental health problems, there has been a clearly observed trend to recruit workers who are competent in research as well as treatment. Pilot studies and demonstrations to improve methods and techniques for treatment and rehabilitation of the mentally ill, financed by the Mental Health Projects Grants program of the National Institute of Mental Health, have been one cause for this increasing need for staff.

Also, general hospitals are developing psychiatric services which are furthering the development of integrated social service departments and expanding the need for more personnel, both medical and psychiatric social workers. It is appropriate that at this time the Medical Social Work Section, and the Psychiatric Social Work Section of the National Association of Social Workers, have collaborated in a statement on *The Practice of Social Work in Hospitals.*[2] It covers the services of the social service department including : social casework ; social work consultation ; participation in planning services and developing policies within the hospital ; participation in education, training and orientation programs ; research and participation in community planning. Another major segment of the publication covers the administration of the social service department.

In the schools of social work in the United States last year there were over 1,000 students being trained in psychiatric field work facilities, and the interest of students in preparing for careers in mental health has remained high. Support for training of social workers for mental health careers from the National Institute of Mental Health has now reached $4,300,000 and is distributed among 50 schools of social work. In 10 schools support is provided for third year or doctoral training. Some experimental units are being used for training in community mental health, such as the Wellesley Human Relations Service and the Illinois Mental Health Centers with community organization orientation.

The figures of membership in the Psychiatric Social Work Section of the National Association of Social Workers have shown a remarkable spurt with over 4,000 persons now being members. One factor responsible for this trend was a change in membership requirements which now permit social workers employed in the new and pioneering types of mental health facilities to be eligible for membership. This growth in membership is further emphasized by the activity of local Sections which develop their own program interests. An important development is the improved coordination and cooperation of local Sections of psychiatric social workers and local groups of psychiatrists in planning joint activities. This development is sponsored by the American Psychiatric Association Committee on Psychiatry and Social Work and the Executive Committee of the National Psychiatric Social Work Section.

As more mental patients move out of the hospital back into community life an increasing number of community health and welfare agencies are assisting in rehabilitative efforts and psychiatric social workers are called upon to act as consultants for guidance and programing. This consultative role is being studied and several schools of social work are providing course content in this area.

A new publication[3] of the National Association of Social Workers gives an overview of the activities of psychiatric social workers in direct service to patients, non-

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[2] The practice of Social Work in Hospitals. Joint Committee of the Medical Social Work Section and the Psychiatric Social Work Section, National Association of Social Workers, 95 Madison Ave., New York 16, N. Y., 1960, $ .25.

[3] Psychiatric Social Workers and Mental Health. Committee on The Role of the Psychiatric Social Worker in Mental Health, Psychiatric Social Work Section, National Association of Social Workers, 1960, $1.00.

clinical activities and other programs including social agencies, public health organizations, residential schools and childrens' institutions, schools and school systems, the armed forces, correctional agencies and industry. It contains a good bibliography.

Another recent publication [4] of the Association presents the findings of a workshop conference in which recognition is taken of the increasing involvement of social workers in group services in psychiatric settings. Both social caseworkers and social group workers participated with the goal of identifying the group elements of social work practice. This document, too, has a series of well selected references.

The Psychiatric Social Work Section has presented annually an Institute which precedes the National Conference on Social Welfare. This past year the topic was "Current Trends in After Care of the Mentally Ill." The Institute encompassed various aspects of after care programs, such as foster home care, day hospitals and after care clinics and programs under public and private agency auspices as well as community planning for after care. It is to be hoped that the proceedings of this Institute will be published, for many interesting and worth while facts and programs were described, and the contribution of psychiatric social workers in the planning and operation of these programs was discussed.

[4] Use of Groups in the Psychiatric Setting—A Report. National Association of Social Workers, 1960, $2.50.

MENTAL HEALTH IN EDUCATION

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The school teacher is potentially the most important professionally trained individual in the development of mental health, says Lawrence K. Frank in a recent survey report on professional schools(1). "Next to the home and parents, the school and the teachers are in the most promising position to foster mental health in the classrooms through direct relations with the class as a group and with individual pupils." Frank adds, however, that student teachers are not receiving systematic training in the newer concepts of personality development, and are still being taught educational psychology derived primarily from animal experiments that ignored the emotional and other aspects of learning, especially symbolic learning.

Recently there has been much more emphasis on positive mental health, and here the schools have a definitely useful function. "What happens to a child in school," says Dr. R. H. Felix, in a recent reprint series from *The Personnel and Guidance Journal*, "helps to determine how he will develop, what kind of person he will be, how he will be able to meet the stress and demands of life"(2).

Dr. Felix points out that since the end of World War II school systems have become one of the largest employers of mental health personnel. "At the same time the mental health professions have been intensifying their interest in schools as a vital place to study the development of children and new ways of reaching children before they develop serious problems." In the past, he says, much of the work in school mental health was focused on the psychodynamics of the child and his teacher. But now research clues from other areas have suggested a refocusing of our concerns. "For example, recent studies of mental hospitals by social scientists have pointed out the significant effects on the patient's behavior on the total environment of the hospital. These studies suggest that we need to broaden our outlook to include, among other factors, study of the school as a social system which affects the mental health of the children. This means that we must investigate the effects on the children of such aspects of the overall school program as its organization and administration, the relationships among the total school staff (including non-teaching staff), varying perception of staff roles, and methods of staff communication. Going

[1] Chapel Hill, N. C.

even further, we need to study school and community relationships and the role of the school, as part of the larger community environment."

That instructional activities must remain the definite task of the teacher is emphasized by Bonney(3). "This means that a teacher is not a clinician, a substitute parent, a group psychotherapist, a counsellor, a test specialist, or a psychologist. It follows, then, that what teachers do to promote mental health among pupils must be those kinds of things which are intimately involved in their usual roles as teachers. Unless a teacher can help achieve mental health goals through socialization procedures, classroom management, sociodrama, class discussions, physical education activities, clubs, programs, and pupil contributions to all kinds of endeavors, then all that is left is the stimulation of intellectual growth through assignments which are prepared and 'handed in' on an individual basis. Although this is important, it falls far short of the potentialities of the school for helping our young people for the diversities of life and for the fuller satisfactions of living."

What kind of professional preparation can be provided for teachers and other educational workers if they are to perform adequately in a mental health program? Herbert A. Otto, of the University of Georgia College of Education has recently reported on efforts at his institution to meet this problem. The teacher-training program, he says, needs to help teachers and other school workers on "how to recognize symptoms, how to give basic supportive help, and how to make adequate referrals and utilize treatment resources." Programs with emphasis on the development of positive mental health, he says, are based on a recognition of the importance of the teacher as a key person in the child's emotional maturation and his character and personality development. "It is a fundamental hypothesis of such programs that if the teacher can be given an increased measure of self-understanding, some basic knowledge of personality dynamics and a grasp of fundamental health principles or concepts, he will be in a better position to create the type of classroom environment which will foster healthy growth"(4).

The 1960 White House Conference on Children and Youth gave considerable attention to the "emotionally handicapped." It recommended that National, State, and local governments participate in financing treatment services for emotionally disturbed children on the same basis as for other handicapped children—specifically, that facilities for prevention, detection, diagnosis be improved and extended, with provision of mental health consultation services in public schools, both rural and urban, especially in the lower grades, and that community guidance services be provided, particularly children in the early school years. The Conference also recommended that "in view of the shortage of adequate personnel and the rapidly increasing number of emotionally disturbed children, special efforts be made to attract medical students into the field of childhood emotional disturbances, by making these positions more rewarding financially and more satisfying professionally and socially; further, that the professional preparation of all people concerned with children include courses in human development and behavior, and training in the early detection of emotional disturbances and in referral methods and resources. It was also suggested that "selected youth and lay adults participate under supervision in established community programs for the mentally disturbed"(5).

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PSYCHIATRIC NURSING

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There is considerable evidence that many nurses are becoming increasingly involved in the various aspects of psychiatric nursing including the promotion of mental health, the prevention of mental disorder, the treatment and curative aspects of mental illness, rehabilitation of the mentally ill and follow-up nursing care of patients after discharge from mental hospitals.

A review of the *Newsletter* of the NLN Council on Psychiatric and Mental Health Nursing indicates that state and local council members have been concerned with a wide range of activities and programs. These included the following topics: education and training of the psychiatric aide or technician; the needs of children; nurse-patient relationships; the role of the head nurse in the psychiatric setting; application of psychiatric nursing principles in general nursing practice and follow-up care for discharged psychiatric patients and their families(1).

Additional organized activities included a series of regional institutes on psychiatric nursing practice sponsored by the American Nurses' Association Conference Group on Psychiatric Nursing Practice(2), a regional workshop on inservice training in psychiatric nursing sponsored by the WICHE Mental Health and Nursing Councils(3), programs on psychiatric nursing at the APA Mental Hospitals Institute(4), at the annual meeting of the American Psychiatric Association(5), and at the biennial convention of the American Nurses' Association.

Continuing emphasis is being placed on the need for clearer definition of the role of the psychiatric nurse. The role of the staff nurse in psychiatric settings varies from situation to situation and is influenced by several factors over which the nurse may have little control(6). Peplau has stated "when mental illness is seen as a result of interpersonal and sociological influences which shape patterns of living, then the actions of the nurse in intervening in socio-psychiatric problems must be guided by an awareness of what she is doing and by disciplined use of the work role in relation to the problem at hand"(7). Nurses and their co-workers need to examine certain patterns of staff-patient interaction which tend to perpetuate psychopathology of patients(8).

The nursing of children with special emphasis on the needs of emotionally disturbed children and retarded children is an area of increasing interest and concern. Professional nurses are playing a large part in the treatment practices and in direct care of individual and groups of emotionally disturbed children(9). A therapeutic program implemented in a boys camp setting for the treatment of neurotic children, revealed that the infirmary is suited particularly to meeting the adaptive forms of neurotic expression as those which find outlet in somatic complaints(10). Emphasis is being placed on the need to better understand the retarded child and his parents and in turn stimulate community action in the field of mental retardation(11).

Interest continues in the mental health aspects of public health nursing. The Visiting Nurse Association in Hartford, Connecticut is currently involved in a 3-year study project designed to develop and evaluate public health nursing services for mental patients and their families(12). The public health nurse is seen as playing a number of roles in mental health(13). Experience in one agency has indicated the use of group meetings led by a psychiatrist and mental health nurse consultant as a useful tool in helping staff nurses to better understand their patients(14). The development of newer programs and the involvement of public health nurses in a broader scope of mental health services raises many questions for those interested in the preparation of public health nurses as well as the continuing education of those currently employed(15).

Research in the clinical aspects of psychiatric nursing is gaining momentum. Studies have focussed on the attitudes of nurses to-

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ward various categories of activities in psychiatric nursing(16), on an operational definition of what psychiatric patients perceive as therapeutic interaction among their daily life on a psychiatric ward(17) and the use of techniques to reduce or eliminate the frequency of incontinence and to increase the incidence of the patients' socially desirable habits in a pyschiatric ward setting (18).

Nursing educators have been involved in numerous activities related to undergraduate and graduate nursing education. Continuing study is being given to the problem of integration of psychiatric nursing concepts throughout the basic nursing curriculum(19). Educators are concerned with the application of the principles of behavior in all clinical nursing situations(20). The inadequate recruitment of nursing students for psychiatric nursing has indicated the need for a critical examination and reappraisal of the content and learning experience currently offered in the basic course in psychiatric nursing(21).

A small group of nursing faculty members from graduate nursing programs in the western region participated in a seminar group to define the clinical content for graduate programs in psychiatric nursing (22).

Problems in aide education including the selection and training of the psychiatric technician(23), the desirability of periodic reassignment of aides to various shifts(24), the aides' role in remotivation(25) and the use of special techniques in psychiatric aide inservice training are areas of current interest. The NLN Seminar Project for Teachers of Psychiatric Aides has completed a series of seminars in Arkansas, North Carolina, South Carolina and Tennessee(26). Articles written by aides for *The Correspondent* indicate considerable interest and enthusiasm for the therapeutic aspects of the aides' role in working with patients (27).

While much has been accomplished, there is need for continuing interest, initiative and support in the study of such problems as the improvement of learning experiences in psychiatric nursing for undergraduate and graduate students, definition of the role of the psychiatric nurse in community mental health facilities, *i.e.*, day and night hospitals and mental health clinics, and increased recruitment of nurses for psychiatric nursing.

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FAMILY CARE AND OUTPATIENT PSYCHIATRY

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FAMILY CARE

The number of Family Care placements in the United States increased during 1960.

TABLE 1
Patients in Family Care in the United States as of June 30, 1960

	ALL PATIENTS	MENTALLY ILL ONLY
New York	2,875	1,940
California	1,558	999
Michigan	1,205	855
Illinois	1,179	931
Ohio	1,061	1,061
Maryland	497	497
Pennsylvania	418	418
Kansas	394	394
Rhode Island	277	277
Massachusetts	467	216
Idaho	33	33
Florida	29	29
Virginia	14	14
Veterans Administration (January to December, 1959)	2,500	1,946
Total	12,507	9,610
Texas (convalescent leave)	1,039	
1959	10,816	6,854

Pennsylvania reported a substantial decrease due to a change in the method of statistical reporting, and the fact that they are now using the definition of Family Care required by the National Institute of Mental Health. Texas reported 1,039 patients on Family Care convalescent leave. It is doubtful whether the use of Family Care in that state conforms to that in common usage elsewhere.

Hester B. Crutcher reported a marked increase in requests for Family Care placements from both patients and staff of hospitals where most of the wards are opened. The patients in open ward hospital settings are given more freedom than they formerly had, and are encouraged to assume increasing responsibility for the planning of their own time and activities(1).

The Veterans Administration reported 1,300 patients discharged to the community from Family Care during the past 5 years. They also note :

(a) During this period, patients with a residence in the hospital of 10 or more years increased to 36% of the total placements, and

(b) a steady increase occurred in the placement of patients in the 40 to 50 year old group(2).

Giovanni and Ullman found that men who were comparatively unsuccessful in first Family Care placements may well have more favorable outcomes when replaced. The best single indication for replacement is a history of a relatively long stay in the family care home. A "relatively long" first placement, according to the authors, amounts to 4 or more months.

If a person has been in the hospital more than 10 years, the authors state, success in Family Care is more likely to follow than in those cases where the hospital residence was short(3).

In Uppsala, Sweden, Dr. Wahlström and his staff of two doctors and three nurses care for 300 patients in Family Care. The homes are located in rural areas and a single home may care for as many as 25 patients. The amount of money paid to each family varies, with the degree of illness ; patients who are sicker are paid for at higher rates and tend to be in the larger homes.

In Beilen, Holland, an outstanding family care program utilizes an inpatient admission center as a day hospital for those patients placed in the community. Patients in foster homes report each morning for therapy and

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return home at night. This program has several advantages :

(a) Intensive treatment makes possible the placement of patients who are still quite sick.

(b) Rehabilitation is easier to accomplish.

(c) More adequate supervision is possible than is customary in a family care program.

(d) The inpatient admission center is able to supervise more patients in active therapy without expansion of bed capacity (4).

Several states reported the use of radio and TV—in some, closed circuit TV—as a public education service to explain the advantages of Family Care.

The *Family Caretaker's Clarion*, a periodical published by the caretakers of Family Care homes in California, provides a medium of education and communication on a state wide basis. The interest aroused by the news sheet has also served to publicize the program and to recruit additional Family Care homes.

OUTPATIENT PSYCHIATRY

At the 116th annual meeting of the American Psychiatric Association, Moore, Albert, Manning, and Glasser reported that prior to a community extension service set up to study and develop alternatives in hospitalization, 80% of the patients on the waiting list at the hospital became inpatients within 90 days. The remaining 20% received outpatient care or refused all treatment. With the advent of the community extension service, only 40% of the patients were admitted as inpatients ; full time hospitalization, therefore, was circumvented for 60% of the people for at least one year. Of the 60%, 18% were treated in a day hospital and 42% were treated without institutional care of any kind(1).

Robinson, de Marche, and Wagle in their investigation of the community resources in mental health indicate that Outpatient Clinics are concentrated in the northeast area and north central states. Very few counties in the rest of the country had such services. In the southern states 87.9% of the counties lacked clinics, and in the mountain and Pacific areas 82.9% of the counties were without such service. Counties without mental health clinics usually lacked other supportive services as well. The areas that did have clinics were concerned about the small number of patients seen. Often there was a waiting period of 2 months for diagnosis and 5 months for treatment. The community tended to resent waiting for service and this reacted unfavorably. Objections tended to develop in the referring agencies such as the courts, schools and private professional groups. The lack of coordination among the facilities available for different types of diagnosis and treatment was evident. Often a patient would be evaluated in one center and would be referred to another center for treatment where the diagnostic process was repeated. The authors emphasized the need for a community "all purpose agency" that would be not only a diagnostic center but also a referral agency. Too few clinics currently exist. The United States Public Health Service, on the basis of the 1954-1955 data, reported that there were 1,234 outpatient psychiatric clinics in the United States. (Bahn and Norman, 1957.) They estimate the need for one clinic for every 50,000 people(2).

The deficit in outpatient clinics is partly due to the lack of full time psychiatrists. Worley's survey indicated that the largest number of psychiatrists employed by outpatient clinics work on a part-time basis. They come from the inpatient psychiatric staff, private practice, the teaching profession, research, and the consultant fields(3).

Coleman emphasizes the need for around-the-clock outpatient service without appointments to allow the patients and their families to feel more comfortable because of the availability of help whenever it is needed. Twenty-four hour service has proven to be a way of preventing hospitalization for some, as well as a way of screening others during their period of emotional crisis, to allow them to get into proper treatment. In addition, it frees the city hospital wards from their useless and demoralizing task of being way stations on the path to a state mental hospital(4).

Lowinger and Gottlieb bring out the changes in management of the schizophrenic patient. With many schizophrenics now living in the community, and with the

use of more drugs in their treatment, the development of a drug clinic as the hospital's outpatient facility was initiated. Here various drugs can be used and reviewed with the patients returning at frequent intervals for regulation of medication depending upon their responses and their needs. More patients can be cared for in less time with this arrangement of the clinic(5).

An outstanding contribution during the past year was "A Guide to Communities in the Establishment and Operation of Psychiatric Clinics." It provides essential information about the organization, staffing, administration of psychiatric clinics, and the clinical and related educational and consultant services in local American communities(6).

Casey, Rackow and Sperry, in "Observations on the Treatment of the Mentally Ill in Europe," found psychiatrists, social workers and psychologists working as a team in outpatient clinics as they do in America. The outpatient clinics served to screen new cases. Individuals who have developed emotional illnesses go to the outpatient clinic for examination and evaluation. Where possible, they are treated in the outpatient setting in the hope that it will not be necessary for them to be sent to the hospital. However, if hospitalization is necessary, a preliminary diagnostic work-up is completed. Therapy, in the outpatient clinic, includes a moderate use of tranquilizing drugs. Great Britain's outpatient clinics are staffed by the psychiatrists on the staff of the local mental hospital. One physician may serve in a number of different clinics(7).

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FORENSIC PSYCHIATRY

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As usual, the periodical literature lays stress on the criminal aspects of forensic psychiatry. One of the most discussed cases is that of Regina v. Podola, an English murder trial in which amnesia was unsuccessfully pleaded in bar of trial rather than as a defense to the charge. Hargrove(1) suggests that the defendant could well have been confined in Broadmoor for study and treatment rather than being rushed to execution. Gooderson(2) is likewise critical of the way the case was handled.

Considerable attention is given, particularly in England, to the recent (1957) Homicide Act recognizing "diminished responsibility" as a defense. Neustatter(3) suggests that the defense should not merely shorten the sentence. Maddison(4) denies that there is a sound basis for the theory that a man is either accountable or unaccountable. Williams(5) discusses a recent English case in which it was held that the judge may guide the jury in interpreting the statute. Lord Keith(6) points out that the new law modifies the conception that there is no "halfway house" between complete legal irresponsibility and the understanding of a reasonable man. Starnes(7) notes that New Mexico in a recent case has recognized partial criminal responsibility. Lady Wooton(8) reviews recent experience with the Homicide Act, and looks on the concept as an attempt to "escape from the shackles of a penalty rigidly fixed by statute." She hopes that ultimately the whole concept of responsibility will "wither away," permitting the psychiatrist to cease his "masquerade as a moralist."

An anonymous note in the Stanford Law Review(9) discusses a recent California case (People v. Gorshen); the writer calls for a reappraisal of the M'Naghten Rule and of the awkward bifurcated procedure of California in cases in which insanity is pleaded as a defense. McEntee(10) discusses a recent New Jersey case (State v. Lucas) in which the M'Naghten Rule is reaffirmed.

Interest in the New Hampshire and Durham Rules continues. Reid(11) contributes a full and scholarly study of the evolution of the New Hampshire Rule as enunciated by Judge Doe. Clayton(12) studies the operation of the Durham Rule and concludes that "society will benefit most by sending more criminals to hospitals and fewer to prisons."

Perret(13) discusses the contributions of psychoanalysis to medico-legal examinations, both in understanding unconscious motivations and in aiding in the offender's rehabilitation.

Augle(14) reviews the care and treatment of psychopathic offenders in Scandinavia, with reference to institutions. Tasher (15) discusses a treatment program in a maximum security hospital. Wilson(16) describes the functioning of a psychiatrist in a law enforcement agency. He urges further use of the psychiatrist by police departments. McKendree(17) discusses the procedure for the evaluation and release of "dangerous" patients. He concludes that the patient on convalescent status is less of a menace to the community than a nonhospitalized member of society.

An excellent review of sexual psychopath statutes is given by Swanson(18). He is critical of the statutes as lacking objective standards and as (in some cases at least) being violative of civil rights.

Nyirö(19) discusses the impaired judgment of the senile as affecting criminal responsibility.

Slovenko(20) considers the question of medical privilege and its relation to the

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work of the psychiatrist. He points out as an anomaly the fact that in three states the psychologist has statutory privilege, whereas the physician has none! The question of privilege is discussed at length in Report 45 of the Group for the Advancement of Psychiatry(21).

Modjeska(22) deals with the legal concept of delusion (in will cases) as exemplified in a recent Wisconsin case (Will of Riemer). The court seems to have adopted a more psychiatric viewpoint than formerly in determining the effect of delusion on testamentary capacity.

Lebensohn(23) attacks the cumbersome and expensive provisions of the District of Columbia law for the commitment of the mentally ill. His criticisms are applicable to a wider circle of jurisdictions than the District only!

Several symposia may be mentioned—the Ohio State Law Journal(24) (Weihofen, Lasswell, Kittrie, Rita James, Ralph Patterson, *inter alia*); Law and Contemporary Problems on Sex offenses(25) (Ploscowe, Glueck Sr., Bowman and Engle, J. E. H. Williams, Sturup) and Cleveland and Marshall Law Review(26) (Szasz, Crawfis, Davidson and Perr, to mention a few contributors).

As for books, one should mention David Abrahamsen's *Psychology of Crime*(27).

Very few legislatures were in session, and the grist was slight. Georgia(28) transferred the Milledgeville State Hospital to the State Board of Health. Wisconsin(29), for no very clear reason, prohibited the issuance for one year of a motor vehicle operator's license to persons convicted of a sex offense—a curious penalty imposed on a special class of offenders!

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ADMINISTRATIVE PSYCHIATRY

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Administrative psychiatrists, constantly preoccupied with the desire to learn new and more effective ways to treat psychiatric illness, have been studying the programs developed in many other countries. They have been experimenting with modifications of these programs in this country as well as assessing the value and cost of their own. The limitation to two loci for patient treatment, either as a full-time resident in a mental hospital or in the psychiatrist's office while living at home, has given way to many modifications of treatment facilities for greater adaptability to the patient's needs. A great deal has been learned from England where the National Health Service has provided for a unification of psychiatric service which brings in general practitioners and public health authorities to the treatment program. The mental hospital has been the hub of these developments with the hospital psychiatrists going out for home visits, running clinics in the general hospital, and operating day centers(1, 2, 3, 4). The new English Mental Health Bill (1959), which provides a single code covering both mental illness and mental deficiency, will undoubtedly raise the already high percentage of voluntary patients in their hospitals and increase the movement of patients in and out of the various psychiatric treatment facilities(5, 6). In the Soviet Republic visitors indicate that the psychiatric dispensary in the community rather than the hospital is the nucleus for psychiatric treatment. That the hospitals of Russia are generally better staffed than those in the U.S.A. is only one of the interesting observations made by Kalinowsky(7) and Kline(8).

At the Hudson River State Hospital, a special sub-hospital has been created for direct admission of patients from Dutchess County, New York. It has its own day care center(9). Louisiana outpatient centers were set up at strategic points in the area served by a state hospital with a resultant great saving (75%) of hospital admissions (10). Others report success with emergency psychiatric service prior to admission(11, 12, 13). Careful studies at the Butler Mental Health Center show that the community can save money by utilizing any of several types of active treatment, including long individual psychotherapy, instead of hospitalization(14, 15).

For years many authorities have stated that psychiatric hospitals should be kept small and not overcrowded. A VA hospital study shows that smaller hospitals release patients earlier than large ones regardless of whether the staff/patient ratio is high or low(16). A method for breaking large hospitals into small units of 250 patients has been described(17); actually a somewhat similar procedure to this is the prevalent one in France, the separate units being given separate names. At the Philadelphia General Hospital, two periods before and after an administrative decision to limit admissions to bed capacity were compared : under the more adequate conditions, not only were as many different patients treated but the number of readmissions was reduced, the length of stay shortened, and the number of patients committed to a state mental hospital decreased(18).

Epidemiological studies on the incidence of mental illness in the U.S.A. have been reviewed with comment by Plunkett and Gordon(19). British statistics generally confirm American ones(20). Other reports are from Thailand(21), South Pacific(22, 23), and Norway(24). It appears that local factors concerning availability and type of psychiatric service are most important factors in determining the number of admissions. Christe, reporting on the increase in admissions (5½ times), decrease in length of hospital stay (¼ times), and increase in readmissions (10 times) between 1917 and 1956 at the University of Basle, recommends that the neurotic depression be treated in general hospitals, that autonomous open pavilions, old age homes with locked units, and special alcoholic divisions be developed(25). It

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is suggested from Sweden that mental hospitals of the future be planned on the basis of 5 beds per 1,000 population(26).

Continued experience with the day hospital and day-night hospital is being published(27, 28, 29, 30, 31, 32), as well as that of psychiatric units in a general hospital (33). For those planning on developing the latter, a section in *The Modern Hospital* would be worthwhile reading(34). Adolescent units are described as they have functioned in a psychiatric hospital (Bellevue) (35) and in a general hospital (Michael Reese)(36).

Work with pay in industrial projects for hospitalized psychiatric patients seems to be increasing. Reports have been published recently from England(37), the VA(38), and Manhattan State Hospital(39, 40). Two psychiatrists and one architect authored the World Health Organization publication "Psychiatric Services and Architecture" (41). It considers outpatient clinics, early treatment centers, day hospitals, psychiatric hospitals, after-care homes, and sheltered workshops. Consideration is given to the design of mother-baby units in the mental hospital.

It is not possible to review the many articles dealing with the interaction of staff attitudes and patient welfare and improvement, the problems of administrative functioning and communication, the relationship with the community. Recently a review of the literature titled "The Mental Hospital and the Treatment-Field" has been published covering literally many hundreds of articles and books published over the years (42).

Administration of the Public Psychiatric Hospital is the subject of GAP Report #46 (43). Many of the administrative problems found in small non-governmental supported hospitals are discussed in the *NAPPH News Letter*(44).

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MILITARY PSYCHIATRY

JOSEPH S. SKOBBA, M.D.[1]

Increasing recognition and investigation of new stresses arising out of changes and new developments in military practice have prompted a re-evaluation of training programs for military personnel.

The experiences of Korean prisoners of war led Wolff(1) to examine the historical records of the prisoners of war in the light of scientific knowledge regarding human reaction and environmental stress with particular attention to interrogation. He submits the following recommendations to officers concerned with "Code of Conduct" training problems :

That the military training and discipline be directed so that individuals may be identified with military groups in which there is an unbroken chain of command to the end that officers be unquestionably trusted and obeyed even when a captor discredits or attempts to undermine authority ;

That the futility and genuine hazards of collaboration with the enemy be emphasized ; there should be no doubt as to what is collaboration and what is proper conduct ;

That it be insured that all military personnel know what to expect as a prisoner of war and what is expected of a prisoner of war by his own people in the way of resisting collaboration.

Furthermore, Wolff urges continued support and encouragement to the prisoner from the home government. All steps should be taken to communicate, such as mail service, food drops, and dropping of inspirational leaflets. The civilian community must instill in the individual, prior to military service, the need for commitment and the determination that a committed man's loyalty has no breaking point.

Kinsey(2) considers that new stresses have been added to submarine duty by the feasibility of prolonged submersion and the development of new weapons. These stresses are expected to increase. Operating personnel are faced with a contracting environment. There is a decrease in sensory input principally due to lack of variety of stimuli ; energy output is reduced, and long periods of isolation characterized by long periods of repetitious activity are experienced. These conditions demand refinements in assessment and selection of personnel for this type of duty. He describes an experiment for determining motivational factors involved in volunteering for unusual or hazardous duty. There is a need for tests to measure the duration of motivation which could be applied periodically. He recommends that training be extended to meet the new and more prolonged stressful conditions likely to be encountered in the future. Mention is made of one program along this line using a two team concept.

Rand(3), an artillery officer, wrote about the conditioning of the soldier for nuclear war. While this article is directed to those concerned with the training of the soldier, it informs us that line officers are fully aware of the psychological aspects of nuclear warfare and are working out their own solutions in the direction of preventive psy-

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chiatry. He noted that there is a paucity of information concerning the psychological impact of nuclear weapons on human beings who operate on the battle field. Likewise there is little known of the effect on the commander and on his decisions pertinent to the reaction of his men to this new type of warfare. He maintained that at present there exists a deep nation-wide apprehension which is also possessed by military personnel. He proposes that training should prepare the individual to accept greater stress and to sacrifice all if necessary. Because of the loss of mutual support under nuclear battlefield dispersion, he emphasizes that training be directed towards greater development of individual confidence, initiative and self-reliance since the soldier must become accustomed to being isolated in battle.

Ruff(4) discusses crew selection for space flight. Until such time as actual manned space flights are made, he proposes that the nature of the stress expected to be encountered should be studied under conditions simulating space flight. The selection and predictions should be made on the basis of current methods of evaluating mental stability and tested in laboratory stress experiments. As data concerning stress and behavior in actual space missions becomes available, the tentative criteria can be more explicitly defined and more objective measures employed.

Kolmer and Lysak(5) studied a sample of 100 trainees who were given a profile rating of S-2 and S-3. These refer to neuropsychiatric status or degree of emotional stability indicating mild(2) and moderate(3) defect.

In a follow-up shortly after induction and again early in the basic training cycle they found that 80% had too high an S rating. It was their opinion that this high rating called the attention of the commanding officers to the psychiatric abnormalities and implied a need for modification of training demands. This was considered to be detrimental to the inductee. It was their conclusion that an accepted inductee stands a better than 9-1 chance of completing his basic training. They found that the induction station physicians evaluated the present potential for effective duty with diminished regard for previous psychiatric disability.

Roff(6) correlated histories of individuals dealt with in child guidance clinics during their grammar and high school years with their military adaptation. He found that a history of earlier peer group difficulties tended to identify subsequent neurotic deviation in the service. In a second phase of the study it was evident that some types of diagnostic-predictive comment were not discriminative with respect to subsequent service adaptation. However, when clear-cut diagnostic evaluations had been made, the long time predictability was substantial.

Marshall(7) describes a testing program carried out in the field over a period of 20 months. The testing was done by clinical psychology specialists under the supervision of a clinical psychology officer. The administration of the tests was done in the unit area in whatever space was available such as day rooms, quarters, or any spot providing privacy. Reasons for referral were evaluation of intelligence, evaluation because of poor performance, and evaluation of personality. A Standard battery of psychological tests, including projection tests, was used. The results were submitted to the Social Service section for evaluation and forwarding to the psychiatrist if considered indicated. The objective was to provide a finer screening process in the unit before psychiatric referral, to provide the psychiatrist with a report before the individual was seen by him, to offer assistance to the Social Work Section in understanding the soldier, to minimize the loss of training time, to avoid removing a soldier from his unit and to prevent the development of the patient role and a self concept detrimental to his functioning as a soldier. The effectiveness of the program was shown by the fact that of the 27 patients recommended for duty without referral to the psychiatrist, none was discharged or came to subsequent psychiatric attention while at the basic training center.

Kramer and Young(8) describe a situation where a psychiatrist was assigned as a probation officer. The clinical record is given in detail. They found that the diverging responsibilities of the probation officer and the psychiatrist—the former to the court, the latter to the patient—made it diffi-

cult to render completely satisfactory service to either party. They considered the dual relationship a serious limitation to the employment of a psychiatrist as a probation officer. They conclude that where psychiatric treatment is indicated, the psychiatrist should act in a strictly professional capacity and another officer should be assigned as probation officer.

Hillbom(9) studied more than 3,000 soldiers with brain injuries from among the soldiers of Finland who incurred their injuries during the wars of 1939-1940 and 1941-1944. He selected 415 cases in a statistically valid manner for detailed evaluation. He had been of the opinion that ratings of disability were either too high or too low because of a lack of information on the course of brain injuries. One section deals with the psychiatric aspects. Of interest is his opinion that the neuroses following trauma are not compensation-striving but a sequel to the stress of the handicap and also of interest is his statement that there is not a single case of "so-called genuine schizophrenia" in his case material. This study is available in English.

This year there has been the largest number of listings of references in foreign languages that has occurred in the Index Medicus in recent years(10).

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PSYCHIATRIC EDUCATION

FRANKLIN G. EBAUGH, M.D.,[1] AND ROBERT H. BARNES, M.D.[2]

In medical education circles concern with the sobering facts of student and personnel shortages continue to plague our current activities and obscure future planning. Ward Darley(1) predicted an annual deficit of 3,000 physicians in 15 years unless major expansions in medical schools are undertaken. A comprehensive study of this problem was reviewed by a U. S. Public Health Service officer(2), who suggested that to keep our present physician-to-population ratio, we will have to increase our output from medical schools by 50%. To further worsen the picture, many observers question whether our society, with greater numbers of old people, an ever increasing standard of living and new and complicated medical advances, will accept *merely* a holding of the physician-population ratio constant. Yet to *merely* hold the ratio constant will take *very* major expansions of training facilities, and to do more will require a "crash program" of unheard of proportions in the next decade. How complex a problem any expansion of medical school output will be is underlined by the fact that for the third year in a row the number of applicants for medical schools decreased (this year about 3% over last year)(3). The Director(4) of the Office of Scientific Per-

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sonnel of the National Academy of Sciences noted the stiffly competitive field we find ourselves in when searching for "high talent." As he points out, the solution is much more than improved recruitment of college students and must involve changes in our whole educational system, beginning at the grammar school level.

It appears obvious that only as we can solve the general problem of medical manpower shortages do we have any possibility of significantly altering pressing shortages of psychiatrists. In 1958 the Council of the American Psychiatric Association authorized a manpower study project. This is well begun and tackling : 1. Analysis of the existing psychiatric manpower picture and 2. Techniques of increasing the supply of psychiatrists(5). We are in a period where frequent comparisons of ourselves with Russia occur. Kalinowsky(6), in a recent review of Soviet Psychiatry, estimates there are more psychiatrists per unit of population in Russia than in the United States. He notes that the majority of their medical graduates are women and that their medical school output approaches 20,000 per year (compared with 7,000 per year in the United States).

UNDERGRADUATE PSYCHIATRIC TRAINING

Lief and his associates at Tulane(7) have presented an interim report on a highly significant 6 year project studying the adaptational problems of medical students in relation to their personality dynamics. Hopefully this study will lead to better criteria for medical student selection, as well as training programs to produce "the best fit between personality of medical students and the types of learning experience to which they are exposed." Tyler(8) indicates the abysmally inadequate background of pre-medical students in the basic psychological and social sciences. Paradoxically little is done in the first two years of medical school to rectify this. Tyler's studies of 81 medical schools indicate that less than 4% of clock hours in those years are spent on material in the broad field of human behavior. Our greatest gains in placing behavioral material in the curriculum for medical students has been in the third and fourth years—the clinical years, learning basic behavioral data in a grossly neglected state. Another author(9) reviewed the manner in which basic psychology—"the science of the behavior of living animals"—is taught in the second year of medical school in New Zealand, and by medical psychologists. Jaco(10) further emphasized the need for extensive social science teaching in the medical school and believes this will lead to the establishment of autonomous departments of behavioral and cultural medicine within medical schools. A model for this type of development is seen at the University of Kentucky with its new Department of Behavioral Science. At Duke an interdisciplinary approach to basic behavioral science teaching has been carried on for 7 years. Cohen(11), in describing this 72 hour lecture and laboratory course, notes that it has been alone effectively *without* a separate behavioral science department.

The amount of current literature describing teaching programs aimed toward the assimilation of a "comprehensive" view of clinical medicine by the student has fallen off markedly in 1960. However a very significant book-length summary report of the Commonwealth Fund supported project at the University of Colorado appeared(12). This compares the results of the more classic teaching of medicine in the outpatient departments of Colorado General Hospital with those of teaching medicine "comprehensively" in the clinics of nearby Denver General Hospital.

Several interesting studies of teaching techniques for medical school psychiatry appeared. At the new University of Florida School of Medicine(13) role playing techniques were found highly effective for large medical school classes. They appeared much more useful than films because of the high degree of peer involvement. Stunkard(14) also found role playing techniques useful for elucidating clinical problems, particularly those involving doctor-patient interactions. Interview and diagnostic processes were well followed by this type of presentation. Werkman(15) used role playing techniques in teaching the interpretive process to medical students. Cases worked up in a children's psychiatric service were reviewed by students and staff, and the students were prepared for interpretation of the results to

the parents of the clinic children. The preparation was largely through role playing demonstrations and the students began to find answers to such questions as, "How do I tell this mother that her little boy has unmet emotional needs?" A group at the University of Kansas Medical School(16) describe 4 years experience with the use of closed channel television (black and white), in teaching psychiatry, particularly to medical students. Up to 100 students viewed interviewing and other demonstrations with the maintenance of a high interest level. It was felt this was a valuable tool for psychiatric teaching—"simple, cheap, reliable, convenient and efficient."

GRADUATE TRAINING

Latest available figures(17) on psychiatric residency programs indicate there are 303 programs in existence (last year 288), with 3,009 appointees (last year 2,770) and 649 vacancies. This gives an occupancy rate of 82% (last year 78%), compared with 87% for all residency in all specialties in the U. S.

Foreign medical school graduates continue to occupy an important place in our training programs with 6,720 present in the U. S. in all residencies (24% of residents). In psychiatry there are currently 566 foreign medical graduates, giving us 19%—or a somewhat lower percentage than for non-psychiatric residencies. The Educational Council for Foreign Medical Graduates reports(18) that as of August 15, 1960, they have evaluated the credentials of over 20,000 foreign trained physicians seeking internships and residencies here. Twelve thousand and eleven had taken the examination with 62.2% qualifying with scores of 70 or above. Slightly under 40% qualified for a standard certificate with scores of 75 or above. The American Hospital Association has held December 31, 1960, as the final date for compliance with their order to clear hospital rosters of uncertified foreign medical graduates or lose their accreditation by the Joint Commission(17). This will pose many individual problems and for certain selected hospitals a very heavy immediate burden. However there has been general acceptance of this move as necessary to maintain reasonable quality of trainees and training programs. That it constitutes a major problem to any of our hospitals and training programs, underlines in another way our basic shortages in medical student production.

Goshen(19) in an excellent and critical review of psychiatric training takes a most pessimistic view of our field, pointing out that the demand for psychiatric services is increasing exponentially—due to increasing prosperity and sophistication of people as well as population growth—while we are not increasing our production of psychiatrists very greatly. He believes that we must meet this challenge or else the science of human behavior will be taken over by more vigorous groups. He places the main burden on the medical schools and psychiatric education therein. Jacques Barzun(20) puts his finger on one of the major problems in present day American academic life—and this includes psychiatry: our modern attitude toward research, which he compares to the medieval attitude toward pilgrimages. He feels that the influx of research money has resulted in institutions that are primarily educational placing a higher premium on research than on good pedagogy. He notes the contempt that many professional teachers have for teaching *per se*, with their advancement academically dependent on research productivity rather than teaching capability. In this regard Kalinowsky's(6) observation that training and research are generally separate in Russia, with independent psychiatric research institutes being the rule, is of more than passing interest.

The Johns Hopkins group(21) have continued their studies on the relation between the therapist's (psychiatric resident) attitudes and personality attributes and his effectiveness with schizophrenic patients. This is an article of very great significance to everyone engaged in the business of selecting and training psychiatric residents. Another interesting study on the effects of the physician's attitudes on outcome of treatment is described by Haefner, *et al.*(22), in an article entitled, "Physician Attitudes toward Chemotherapy as a Factor in Psychiatric Patient's Response to Medication." Bailey(23) chides us for our "schizoid" attitudes toward brain and behavior and

urges us to weave biological data—"so rapidly accumulating"—more intimately into our psychiatric teaching and cease to teach our "neophytes in terms of mythological pseudoscientific pseudoentities."

The importance of the psychiatric resident learning to deal with both the patient and the patient's family is emphasized by the Syracuse group(24). This would appear to be part of his training experience, to be covered in the resident's supervision as well. A Maryland program(25) indicates a method for cultivating community mental health leadership through placement of third year residents in the role of consultants to local health departments and as directors of part-time mental health clinics. Training of residents in this type of activity, including work with the various other "gate-keepers," learning the techniques of good consultation may be our most useful contributions at present to the preventative field. Certainly the most recent definitive report on other aspects of mental health education(26) indicates the general lack of agreement as to values, goals and techniques.

Rosenbaum(27) presents the difficulties in teaching psychosomatic medicine, remarking that the best teaching is done when the resident has full responsibility for continuous management of the patient and is supervised by a teacher—whether psychiatrist or internist—who is engaged personally and currently in long-term patient care. As he points out, this means well qualified psychosomatic teachers are rare indeed. Laughlin(28) has recently reviewed European psychiatry and remarks on training in English medical schools. Apparently undergraduate psychiatric training there is minimal and few graduates become interested in this specialty. Part of this may be related to slow evolution and strong traditions, making advances in a new field difficult. Lack of money appears to play a role also, England not having had the great impetus to psychiatric education which has come in the U. S. from extensive federal support of training and research.

In February, 1959, the American Board of Psychiatry and Neurology gave formal recognition to Child Psychiatry as a subspecialty in Psychiatry. Allen(29) has reviewed the developments in the field leading up to this. Robinson(30) gives special emphasis to the unique training developments in the field and their impact on psychiatric training in general. Harris(31) indicates there is a shift in the emphasis in child psychiatric training with more concern being given to the child with learning difficulties. This suggests the need for more extensive work with the mentally retarded child by training clinics.

Szasz(32) raises some searching questions concerning contemporary psychoanalytic training, including the responsibility of the training analyst to the candidate and to the institute. A review(33) appeared from Columbia University outlining the development of and advantages of having a psychoanalytic training unit part of a medical school and university structure.

The future of *post-graduate* medical education is apparently promising. As one author(34) puts it, "the focus in the future will be on truly high quality continuing education in which basically well-educated physicians will be attracted to participate as regularly and as matter-of-factly as they now trade their automobiles." There is a recent listing of all post-graduate courses, including those in psychiatry (a national total for psychiatry of 67)(35). These range from "Contemporary Plays and Morals in the Light of Modern Psychoanalysis," to "Psychopathology for the General Practitioner." The problem of post-graduate training in hypnosis—for psychiatrist and particularly non-psychiatrists—is dealt with by Rosen(36), who is highly critical of the barn-storming, hotel room groups currently on tour. Monroe(37) outlines a pioneer effort (at Tulane) to develop a curriculum for training in hypnosis. While currently this is designed for senior medical students, hopefully it will give ideas and experience applicable to adequate and structural graduate and post-graduate training programs in hypnosis.

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REHABILITATION AND OCCUPATIONAL THERAPY

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During 1960 an unprecedented amount of information about psychiatric rehabilitation has been published. A survey of this vast amount of material leads to certain conclusions : 1. There have been no dramatic, new techniques of rehabilitation developed during the past year ; 2. Not only psychiatrists (1-3), but other individuals(4) and agencies(5, 6) now recognize that emotional and mental disturbances are the most extensive health problems of all and are making efforts to assist in their resolution ; 3. Rehabilitation can no longer be considered to be just the process of readjusting the mental patient to his optimum role in society after active treatment has been completed(7), but rather a part of total therapy which includes preventive, remedial and restorative measures(8-11) ; 4. There is strong movement toward the development of community facilities in mental health care(12-38) ; 5. The traditional pattern of operation and function of the mental hospital is changing rapidly(39-41) ; 6. Greater concern is being evidenced for the chronic, long-term psychiatric patient(42) ; 7. Work programs(43-47), sheltered workshops(48-50), vocational rehabilitation projects(51),

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facilities for recreation(52) and ancillary methods of treatment(53-62) are increasingly recognized as important; 8. Special attention is being paid to the elderly(63-71) and to the young(72-75); 9. Close follow-up and counseling of discharged patients are now accepted as essential for recovery(76-79); 10. Emotional factors that hamper restoration of the physically ill are being studied, understood and dealt with more widely(80-85); 11. It is more apparent that rehabilitation must be individual rather than group oriented(86, 87); 12. Research in rehabilitation is being pursued more actively than ever before(88-91); 13. More conferences on the subject are being held(92-95); 14. Psychiatry in parts of the world other than the United States is offering much that is worthy in terms of rehabilitation(96-107); 15. A markedly increased number of books on all phases of rehabilitation(108-115) and occupational therapy (116-125) has become available; and 16. Occupational therapy has continued to make progress(126-148). Obviously, it is impossible to review each of the above cited publications. Only a few of the seemingly more important ones can be considered.

Even though no dramatic, new techniques of rehabilitation have been introduced during the past year, psychiatry is making real progress in its fight against mental illness. The number of patients in American mental hospitals decreased during 1959 for the fourth consecutive year even though admissions increased(149). These and other facts about mental health have been made available in a brochure published by the National Committee Against Mental Illness(150). Such authoritative figures support the statement of DuBois(1) that emotional and mental disturbances are the most extensive health problem of all and represent a challenge to every practicing physician. Terhune(2) says this challenge must be met not just by psychiatrists but by all physicians. The United States Government holds a similar belief as evidenced by the fact that the National Institute of Mental Health(3) is sponsoring courses in the psychiatric aspects of medicine for general practitioners and the U. S. Public Health Service(5) is formulating long-term plans for increasing mental health facilities.

Kissen and Carmichael(9) review the subject of psychiatric rehabilitation. Their report includes important statistics, significant legislation and an excellent bibliography.

Simon(10) points out that the concept of psychiatric rehabilitation has broadened markedly during the last decade. He says that it is currently characterized by 4 trends: (a) "The therapeutic use of self"; (b) The "open hospital" and "therapeutic community" and their effect on hospital-community relationship; (c) The development of a variety of transitional agencies between the hospital and the community; and (d) The establishment of the mental hospital as a true "community hospital." Ebaugh(12) is pleased with these trends and advocates that community participation in mental health be enlarged and accelerated. Rockmore(13) says that careful planning is essential if such a program is to be successful. Such planning must include consideration of: the psychodynamics of the patient's problem(Unterberger, 14); arrangements for rehabilitation as early as possible in the patient's hospital stay(Bellak and Black, 15); the discharged patient's specific needs(Kasprowicz, 17); social factors(Kris, 18 and Walz, 19); and proper indoctrination and use of the family(Evans and Bullard, 20), the home(Friedman, Rolfe and Perry, 21) and foster homes(22). Linden, Appel, Davis and Matthews(23) discuss elements influencing the success of a public mental health program; Bloomberg(24) proposes a community-based hospital as a branch of a state hospital; Weinstein(25) describes successful day-care programs, and Carmichael(26), Fox, Rutter and Smith(27), Freeman(28), Bierer(29), Kramer(30), Gussen(31) and Steinman and Hunt(32) discuss the value of day hospitals. Drubin(33), Oliver(34), Holman(35) and Cleobury(36) voice words of caution about newer trends in psychiatric rehabilitation. Drubin(33) fears that such community-oriented facilities will care for only certain types of patients and that the more chronic and long-term cases will be placed at a disadvantage, while Oliver(34) assumes that community services are a device to save

money. However, Carmichael(26) says the day hospital has demonstrated that the rehabilitation potential of chronic schizophrenics has been greatly underestimated, and Freeman(37) emphasizes that community services are not inexpensive. Basham (42) reports that chronic, long-term patients profit from movement toward the community. Similarly, Rafferty(38) says that a day treatment structure is beneficial to adolescents.

These newer trends in psychiatric rehabilitation indicate that the function of the mental hospital is changing. Tallman(39) believes "that the state hospital is becoming and will increasingly become a place where hospital psychiatry of a professionally high standard will be practiced" and that the impetus for progress is coming from state hospitals. O'Neill(40) feels that treatment methods must be developed within the hospital and integrated with the community. He is concerned over the tendency in America to develop community mental health services separate from the hospitals. It is interesting to note parenthetically that the precursor of the modern mental hospital was in existence briefly in Sicily almost two hundred years ago(Mora, 41).

Work, as a factor in rehabilitation, has received particular attention recently. Jones (44) writes of the importance of choosing work tasks that meet the needs of the individual patient. He believes that not just work itself but the patient's ability to interact with other people and to accept authority are of importance in the rehabilitative process. Schossberger(45) gives an account of a successful work village for mentally ill persons in Israel. A Berkeley, California toy manufacturer has set up an assembly line with 20 employees, all with histories of past mental illness(47). Probably this is the first time a concern has employed a staff with an almost 100% record of past mental disorders. Hubbs(48), Denber(49) and Freudenberg(50) describe successful sheltered workshops. These authors stress that the element of economic gain is a significant factor in the rehabilitation of psychiatric patients. Wheat, Slaughter and Frank(51), in discussing vocational rehabilitation, emphasize that opportunities must be geared to the changing needs of the patient.

The importance of recreation in rehabilitation is emphasized in 4 papers on the subject by psychiatrists(52). Other accessory methods are reported to be important adjuncts in rehabilitation. Music(53), hobbies (54), ex-patients as volunteers(55, 56, 57), ex-patients' clubs(58), college students(59), the family doctor(60), the public health nurse(61) and self-help organizations(62) all can play a significant part in restoration.

Many programs for the ever-increasing number of geriatric patients(63) are being developed(64, 65, 66, 67, 68, 69, 70, 71), all of which center around finding new objectives and giving new meaning to the existence of the elderly. Similarly, special programs are being developed to expedite the recovery of adolescents and children(72, 73, 74, 75).

Close follow-up and counseling are assuming an increasingly important place in rehabilitation. Patterson(77) says that the relationship between the counselor and the patient is the most important factor in successful rehabilitation, while Hamilton(78) emphasizes the community role of the counselor. Bettag(79) expresses the hope that by 1965 there will be departments of rehabilitation in all state mental hospitals and schools.

As in previous years, the periodicals contain many publications dealing with the relief of emotional factors that obstruct rehabilitation of the physically ill. Visotsky (80) states that the patient must adjust to a new image of himself, and Whitehouse (81), Becker(82), Fishman(83) and Willard(84) stress the importance of psychological factors in physical disability. It is gratifying to know that the U. S. Civil Service Commission now considers epileptics employable under certain conditions(85).

Whitten(86) feels strongly that "rehabilitation of the future will be more individual-need-centered and less agency-centered than before," while Efron, Marks and Hall (87) compare the effectiveness of individual-centered and group-centered activity and conclude that there is no essential difference in effectiveness.

All sorts of research projects in methods and facilities for rehabilitation are being undertaken, prominent among which are

experimental efforts to rehabilitate schizophrenics(88, 89, 90, 91).

Conferences on rehabilitation have been frequent during the past year(92-95).

Trevethan(96) reports on rehabilitation internationally and Maclay(98) reviews the major provisions of the New Mental Health Act in England and Wales. This legislation is the result of an extensive study and gives expression to an entirely new way in which mental disabilities can be dealt with. Other contributions from the foreign scene are: from England a new type of wing on a mental hospital(99), a factory that employs only mental patients(101), and an authoritative report on open hospitals(102); from Sweden, a plan for 5 open hospitals(103); and from Australia an account of the rapid progress of the open door policy(104). Kalinowsky(105) describes Soviet psychiatry and emphasizes how it is centered around dispensaries and is outstanding in its organization and therapeutic activity. Klumpner(106) gives an account of a psychiatric hospital for children in Moscow. The reader is urged to study Laughlin's survey of psychiatry in 6 European countries(107) in order to achieve a better understanding of the work of his colleagues in foreign lands.

Eight new books and booklets dealing with various aspects of rehabilitation have come to this reviewer's attention during the past year. Of these, the work of Greenblatt and Simon is outstanding(108). They report on rehabilitation during hospitalization and the post-hospital adjustment period as discussed at a conference of authorities in psychiatry, medicine, and the social sciences. Kurtz(109), in *The Social Work Year Book of 1960* considers problems of the aging, mental health and vocational rehabilitation. Gelber(113) reports on a study made to identify the needs of discharged mental patients in relation to public health nursing functions. *Troubled People on the Job*(114) offers excellent advice to supervising personnel in industry.

Several books and manuals on occupational therapy also have been published recently. This reviewer has seen ten. A manual that takes statements and quotations from textbooks on occupational therapy (116) orients the reader toward total rehabilitation. Objectives, methods and media of occupational therapy for use with individual patients are discussed. Psychiatrists and occupational therapists dealing with prevocational and vocational problems should read *Tower*, a book(117) which deals with testing, orientation and work evaluation in rehabilitation. The World Federation of Occupational Therapists has published the proceedings of its second international congress(120), which includes discussion of the role and contributions of occupational therapy in rehabilitation of the mentally ill. A new and particularly well illustrated textbook of occupational therapy with an excellent bibliography(122) describes many techniques for the management of psychiatric patients. Another new book deals with occupational therapy in pediatrics and shows how it can be used beneficially in children with different types of emotional problems(123).

Publications in periodicals during the past year that consider occupational therapy and psychiatry have not been unusually numerous. Conte(126) visualizes the future effectiveness of occupational therapy as depending on the psychotherapeutic role of the therapist. Anderson and Gordon(127) tell why overspecialization in occupational therapy is undesirable. Reilly(128), Fry (129) and Huntting(130) discuss various research potentialities of occupational therapy. Llorens(131) says that psychological test results are a valuable aid in planning occupational therapy goals of emotionally disturbed children. Roberts(135), Dixey, Haslerud, Niswander and Rutledge(136) and Deane and Dodd(137) describe occupational and educational techniques that benefit the chronic mental patient, while Farrell(138) and Elson(140) emphasize the importance of the workshop as a part of occupational therapy. Specific activities as tools of occupational therapy are considered by other authors(Krygar, 141—clerical work, Etheridge, 142—patient publications, 143—creative writing).

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CORRESPONDENCE

PSYCHIATRY AND ITS METHODS

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY :

SIR : Dr. Walter D. Hofmann, in his letter in the August issue of this journal, touches on an issue deeply disturbing all thoughtful psychiatrists. In the last 40 years a unique situation has arisen almost unchecked. Psychiatry has allowed itself to be built up without checking extravagant therapeutic and scientific claims, as would be a matter of course in other specialties. The words of Ganet, "anarchy and dogmatism reigns in psychiatry," are even more true today than half a century ago.

Much psychiatric literature is repetitive and unproved while important areas are neglected.

So many psychiatrists naively assume that their observations are necessarily valid, encouraged by Freud's ambitious notion that the psychoanalyst becomes an objective instrument of science merely by removing his emotional bias by being analyzed. His was a revolutionary concept. Unfortunately however, it proved wrong. By now, most analysts agree, as did Freud at the conclusion of his life, that training analysis fails to achieve its objectives; indeed, Glover thinks the longer the analysis, the greater the element of suggestion. But the conclusion that the analyst is not entitled to scientific license merely by virtue of having been analyzed, has not yet been drawn.

At the other end of the scale are the "research" publications. As Dr. Hofmann rightly points out, merely calling something "research" does not make it so.

Perplexed by the overwhelming manifoldedness of the material, too many researchers pick over-simplified tangible trite data for control experiments. Bleuler said that psychiatrists tend to describe not what is most significant but what lends itself most easily to being described. This is still more true of the hypotheses of many researchers.

We cannot transfer the approaches of one science to another. Psychiatry must develop its own methods. Pseudo-exactness is no substitute for intelligent clinical observation. Psychiatry has been seriously handicapped by the tremendous professional pressure to conform. This has dampened originality and even deterred many medical doctors from entering psychiatry.

Melitta Schmideberg, M.D.,
Director of Clinical Services,
APTO, New York, N.Y.

Dr. Hofmann comments that Dr. Schmideberg's counsel and caution are "worthy of emphasis."

Ed.

ABSTRACTIONS

Natural rights and natural liberties exist only in the kingdom of mythological social zoology.

—JOHN DEWEY

NEWS AND NOTES

Certification in Child Psychiatry.—The Committee on Child Psychiatry of the American Board of Psychiatry and Neurology, Inc. will conduct its next examination on February 6 and 7, 1961 in Chicago, Ill.

Applications for certification on record will be received up to September 21, 1961. All applications received after that date will be considered for eligibility for examination only.

All inquiries may be directed to: Dr. David A. Boyd, Jr., Executive Secretary-Treasurer, American Board of Psychiatry and Neurology, Inc., 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Psychiatry and Neurology, Inc.—The following candidates were certified as Diplomates in Child Psychiatry by this Board and its Committee on Certification in Child Psychiatry, March and October 1960.

MARCH, 1960

Finzer, William F., M.D., Pittsburgh, Pa.
Frank, Richard L., M.D., New York, N. Y.
Gilbert, Louis J., M.D., New York, N. Y.
Kaufman, Irving, M.D., Belmont, Mass.
Kaufman, S. Harvard, M.D., Seattle, Wash.
Lewis, Murray D., M.D., Rochester, N. Y.
Rabinovitch, Ruth, M.D., New York, N. Y.
Rapoport, Jack, M.D., New York, N. Y.
Rochlin, Gregory, M.D., Cambridge, Mass.
Sheimo, Stanton L., M.D., San Mateo, Calif.

OCTOBER, 1960

Adamson, William C., M.D., Rydal, Pa.
Altman, Sidney Irving, M.D., Philadelphia, Pa.
Belmont, Herman S., M.D., Elkins Park, Pa.
Bourg, Donald J., M.D., Denver, Colo.
Bucknam, Frank Gilbert, M.D., Hartford, Conn.
Burks, Henry L., M.D., Ann Arbor, Mich.
Call, Justin D., M.D., Los Angeles, Calif.
Caplan, Hyman, M.D., Montreal, Que.
Clements, C. Glenn, M.D., Cincinnati, Ohio.
Coda, Evis John, M.D., New Orleans, La.
DeMyer, Marian K., M.D., Indianapolis, Ind.
Gluckman, Robert M., M.D., Evanston, Ill.
Hayes, Marjorie, M.D., San Francisco, Calif.
Johnson, James A., M.D., Milwaukee, Wis.
Kohrman, Robert, M.D., Chicago, Ill.
Kraft, Irvin A., M.D., Houston, Tex.
Langdell, John Irving, M.D., San Francisco, Calif.
Littner, Ner, M.D., Chicago, Ill.
Lockett, Harold James, M.D., Northville, Mich.
Marten, George Wenceslas, M.D., Memphis, Tenn.
Mora, George, M.D., Providence, R. I.
Newman, Samuel J., M.D., Cincinnati, Ohio.
O'Connor, Robert Emmett, M.D., Madison, Wis.
Philips, Irving, M.D., San Francisco, Calif.
Plotsky, Harold, M.D., Washington, D. C.
Ragins, Naomi, M.D., Pittsburgh, Pa.
Robinson, James Allen, M.D., Buffalo, N. Y.
Rogers-Greenblatt, Gertrude, M.D., Newton, Mass.
Silberstein, Richard M., M.D., Staten Island, N. Y.
Solnit, Albert J., B.A., M.A., M.D., New Haven, Conn.
Stark, William, M.D., Washington, D. C.
Stewart, Ann Hoague, M.D., Denver, Colo.
Switzer, Robert E., M.D., Topeka, Kan.
Tec, Leon, M.D., Norwalk, Conn.
Tyler, Edward A., M.D., Indianapolis, Ind.
Weisner, Wayne M., M.D., Manhasset, N. Y.
Wright, Harold L., Jr., B.S., M.D., Northville, Mich.
Zucker, Joseph M., M.D., Providence, R. I.
Zuger, Bernard, M.D., New York, N. Y.

American Group Psychotherapy Association.—The Fifth Annual Institute of the Association will be at the Henry Hudson Hotel, New York City, January 25-26, 1961.

The theme is the Application of Group Psychotherapy in the Treatment of some Major Psychopathological Syndromes.

Registration fee is $35.00 for members and $50.00 for non-members (which includes luncheon January 25 and dinner January 26).

The 5th Annual Institute immediately precedes the 18th Annual Conference of the AGPA January 27 and 28, 1961, at the same hotel.

Advance registration is necessary. For full program write to: American Group Psychotherapy Association, Room 516, 1790 Broadway, New York 19, N. Y.

Seventh International Congress of Neurology.—This Congress will be held in Rome September 10-15, 1961, under the

auspices of the World Neurologic Federation and of the National Institute for Nervous Diseases and Blindness of Bethesda.

Information is available from the President of the Congress, Professor Mario Gozzano or from the Secretary General, Dr. Giovanni Alemà, Viale Università 30, Rome.

The fifth International Congress of Electroencephalography and Clinical Neurophysiology will be held in Rome September 7-13, 1961.

Information may be obtained from the President of the Congress, Professor Mario Gozzano, or from the Secretary General, Dr. Raffaello Vizioli, Viale Università 30, Rome.

Third World Congress of Psychiatry.—At this World Congress to be held in Montreal June 4-10, 1961, it is expected that there will be a large attendance of psychiiatrists from the 70 different countries with which the Organizing Committee has been in touch.

For the first time since the World Congress in Paris in 1950 there will be an opportunity to speak about the development of plans based on the broad advances that psychiatry has made in these last 10 years.

A social program is being arranged for the evenings, and there will be separate daily programs of entertainment for the ladies of the Congress and for children in 3 age groups (5-9, 9-12, and teenagers).

A travel agency, Thos. Cook and Son/-Wagon-Lits, has been appointed, and inquiries about group travel should be made to the agency's offices.

Registration at a reduced rate is available until January 15, 1961. Thereafter the full registration fee will be charged.

Full information may be obtained by writing to : III World Congress of Psychiatry, Allan Memorial Institute, 1205 Pine Avenue West, Montreal 2, Canada.

Psychoanalysis.—"Kairos" and the Therapeutic Process will be the subject of a paper by Dr. Harold Kelman, Dean of the American Institute for Psychoanalysis, to be given on the evening of January 25, 1961, 8:30 p.m. at the New York Academy of Medicine, 2 East 103rd St., New York City.

("Kairos" refers to a crisis or turning point. Dr. Kelman will define some of the techniques by which the happenings in this phase of the therapy can be utilized toward effecting a favourable outcome.)

The Mary Putnam Jacobi Fellowship.—The Women's Medical Association of the City of New York offers the Mary Putnam Jacobi Fellowship to a graduate woman physician, either American or foreign. The Fellowship of $1,000 will begin October 1, 1961 for a period of one year. At the discretion of the Committee, an award of $2,000 may be given biannually. The recipient of the Fellowship will be expected to make a report at the end of the 4th month following which the balance will be awarded, subject to the approval of the Committee. The Fellowship is given for medical research, clinical investigation or postgraduate study in a special field of medicine. The recipient is expected to devote full time to the Fellowship, but exception may be made under special circumstances.

Applications may be obtained from Ada Chree Reid, M.D., Chairman, 118 Riverside Drive, New York 24, N. Y., and must be returned before March 1, 1961. Successful candidates will be notified not later than May 1, 1961.

Bibliography on Sex Offenders.—The Division of Legal Medicine, Department of Mental Health, Commonwealth of Massachusetts, is compiling a bibliography on sex offenders and sex offenses. We would appreciate your forwarding to us any material consisting of articles or unpublished papers in this area. Please address your contribution to Norman A. Neiberg, Ph.D., Director of Psychological Research, Division of Legal Medicine, 33 Broad Street, Boston, Massachuetts.

Graduate Course in Criminology, University of Cambridge.—The University of Cambridge has established a Post-Graduate Course in Criminology, to be given by the Institute of Criminology, and leading to a diploma, beginning in 1961. Each year the course will extend from October to July.

The programme will include 105 lectures and 90 seminars, dealing with all the major

aspects of criminology, criminal law and procedure. Individual work will be required at the seminars.

Instruction will be given by Dr. Radzinowicz, the Wolfson Professor of Criminology, and staff, and by visiting lecturers, and experts from the Home Office.

Application forms for admission to the course are available from the Secretary, Institute of Criminology, 4 Scroope Terrace, Cambridge, England, and must reach the Secretary not later than March 15, 1961, for the course commencing in October.

TRAINING FELLOWSHIP IN NEUROANATOMY AND NEUROPHYSIOLOGY.—New York University Medical Center is offering a 3-months Training Fellowship with stipend of about $1,000 in Neuroanatomy and Neurophysiology, beginning March 1, 1961. Candidates holding the M.D. or Ph.D. degree and interested in teaching or research in these subjects are eligible. Applications should be in by February 1, 1961. For information apply to: Dr. Louis Housman, Dept. of Anatomy, New York University Medical Center, 550 First Avenue, New York 16, N. Y.

CORRECTION

There were several typographical errors in our article "Contemporary Conversion Reactions: A Clinical Study," published in the April, 1960 issue of the *Journal*. The more serious error concerns the footnote on p. 906, the formula used to test the birth order and developmental role hypotheses. The formula with which we computed X^2, with one degree of freedom was

$$\frac{\left[\sum\left(r_i - \frac{n_i}{i}\right)\left(\frac{i^2}{i-1}\right)\right]^2}{\sum\left(\frac{i^2}{i-1}\right)\left(n_i\right)}$$

The first term in the numerator was erroneously published as

$$\left(\frac{r_i - n_i}{i}\right)$$

This formula was derived from the one to the left of it, and there should have been an = sign between the two. Also, on the same page, column 2, line 18, $.05<p<.01$ should obviously have been $.05>p>.01$.

Frederick J. Ziegler, M.D.

WELFARE STATE

He who depends upon the state for protection, must pay for it by limitations on liberty. By every new demand which he makes upon his government, he increases its function and the burden of it on himself.

—WILLIAM GRAHAM SUMNER

BOOK REVIEWS

From the Death-Camp to Existentialism. By *Viktor E. Frankl.* Translated by *Isle Lasch.* Preface by *Gordon W. Allport.* (Boston: Beacon Press, 1959, pp. 111. $3.00.)

This book presents "A Psychiatrist's Path to a New Therapy." The author, Professor of Neurology and Psychiatry of Vienna University, was a prisoner in 4 Nazi concentration camps. This horrifying experience affected his psychotherapeutic orientation and led him to formulate "logotherapy," hailed by Allport as "The Third Viennese School of Psychotherapy." Using flashbacks, Dr. Frankl describes his 3 years in these camps and finally, in Part Two, formulates the basic principles of his theory. Originally published in German, this book is so remarkably transcribed and skilfully put together that one is barely aware of reading a translation.

The work has undeniable literary value and is also interesting from the psychological standpoint. Events evoked are so accurately caught they will be familiar to all ex-prisoners of Nazis. Descriptions of atrocities, indignities, and horrors prisoners constantly endured awaken deep sympathy and pity for the victims. These feelings tend to woo one to accept some of Dr. Frankl's theoretical conclusions.

In my opinion, our survival in camps was due to a combination of such factors as physical resistance, the degree of sharing in social relationships (lone wolves die early), and pure luck. Not always able to take an overall view of the situation, we tried hard to survive the way we knew best—the way we had learned, implicitly or explicitly, in the past. In retrospect, survival itself seems miraculous. No wonder survivors are tempted to believe their "recipes" have universal value—a mystic key to all of life!

Dr. Frankl's key is, in effect, Nietzsche's statement: "He who has a *why* to live can bear with almost any *how*." For him this is "a motto for all psychotherapy and education." From this sweeping generalization, he supplies his patients' lives with "meaning." I quote: "For, ultimately, man should not ask himself 'What is the meaning of my life?' but should, instead, realize that it is not up to him to question—it is he who is questioned by life; it is he who has to respond—to be responsible."

We know nothing about Dr. Frankl's pre-camp life or previous orientation. We know what he went through and where he arrived. But, where did he start from? Is the journey an illusion? Did some metaphysical beliefs, implicitly held, become explicit?

I observed in camps that the sanity of some intellectuals was threatened not so much by cruelty and abuse as by the senselessness of their existence. They felt themselves above people living from day to day, who were supported by a simple, blind faith, and yet they themselves craved certainty; too "sophisticated" to harbour a candid faith, they sought certainty in teleology. I was amazed to hear in camps many educated people expounding irrational theories which even illiterates would not consider seriously. These were intellectuals who had relied on their elevated social position for security. As long as their status was recognized and respected, they felt that it was their "manifest destiny" to occupy their social position. Suddenly, in the camps, they were stripped not only of their social advantages but of the very prerogatives of human condition. The latter loss was easier to take since the misery was general. The loss of status, in contrast, threatened their self-esteem by hitting them individually. Once set apart, their natural attempts to salvage their "dignity," to retreat into reminiscence of the past were unwittingly permeated by their longing for the lost social supremacy. Little wonder that their strivings to escape the dreary reality were frequently misconstrued, mocked, and squelched by their fellow prisoners. Experienced as "uniqueness," isolation became bearable. Perhaps this answers Dr. Frankl's query why his quest for "dignity" was frequently resented by his camp-mates as a superior attitude. Hurt by their contemptuous and brutal reactions in addition to the general cruelty of the S.S. and Capos, he was unable to remain "unique" in the material world and took refuge in fantasy and metaphysics. There had to be a hidden, higher meaning to his misery and his very suffering made him unique.

For instance, he reports that, when suffering from extreme pain, he became disgusted with the situation and fancied himself giving a lecture on the psychology of the concentration camp to an attentive audience in a warm and well-lit lecture room. "By this method, I succeeded somehow in rising above the situation, above the sufferings of the moment, and I observed them as if they were already in the past." It seems obvious that Dr. Frankl, prevented from normal social interaction, obtained

it in fantasy. Lecture has no meaning outside of social terms. It was never really the abstract meaning of life that helped him out. It was always a concrete social experience.

Dr. Frankl wants us to believe that the world is one huge concentration camp and impotence is our prevailing condition. He preaches fatalism under the guise of "NOETIC," neo-platonic philosophy.

He is discarding reason because it failed to provide him with certainty. He seems to be unaware of the revolution which the theories of Quanta, Relativity, and the Principles of Indetermination of Heisenberg produced in our understanding of the role of scientific reason. It is the most powerful tool of investigation available to man but it is not meant to provide certainty. On the contrary, results have meaning only in operational terms and are always only provisional.

The quest for certainty does not properly belong to the scientific domain. Certainty may alleviate the individual's anxiety and therefore help him mobilize his energy against adversity. But it is intelligent action only which solves problems.

Rational and objective examination of the horrors of the concentration camps can be only undertaken in a social and historical perspective. The findings cannot fail to make us more aware of our social responsibilities. Nietzsche, of whom Dr. Frankl is so fond, believed that man's destiny is determined by his own acts. Another existentialist, Sartre, states that it is up to us to give a social meaning to our lives. One wonders if Dr. Frankl is aware that life has social meaning other than status consciousness?

The inconsistencies of his philosophy do not depreciate his often admirable behaviour in camps nor do they belittle his psychotherapeutic ability. But the fact that he can help his patients does not necessarily prove the superiority of "logotherapy." I think he helps them by making their life more related to society at large. The concomitant belief in absolute meaning and uniqueness of their lives does not improve the result. On the contrary, by making them less socially active, he also makes them potentially more vulnerable.

M. D. Rejskind, M.D.,
Regina Mental Health Clinic,
Regina, Sask.

Psychosocial Problems of College Men. Edited by *Bryant M. Wedge*. (Yale University Press, 1958. $6.50.)

This collection of articles based on research and clinical experience by members of the Division of Student Mental Hygiene of the Department of University Health at Yale University argues persuasively for considering "The College Age" a critical period for personality development. The multitude of influences brought to bear upon the individual at this age is reflected in the range of viewpoints represented in the chapter headings: The Psychosocial Position of the College Man; Satisfaction and the College Experience; Personality and Academic Achievement: A Questionnaire Approach; Clinical Study of Academic Underachievers; Leaving College because of Emotional Problems; An Investigation of Personality Differences Associated with Competitive Ability; Further Observations on Competitive Ability in Athletics; Who Uses a College Mental Hygiene Clinic; Group Psychotherapy with College Students; The Borderline Patient in the College Setting; Fear of Homosexuality in College Students; Identity Diffusion and the Synthetic Function; The Relationship of Intellectual Achievement to the Processes of Identification; and Treatment of Idiosyncratic Adaptation in College Students.

Bernard Lubin, Ph.D.,
Indianapolis, Ind.

A Polychrome Atlas of the Brain Stem. By *Wendell J. S. Krieg*. (Evantson, Ill.: Brain Books, 1960. $3.00.)

This small atlas of sectional drawings of the brain stem by the author consists of a set of illustrations of Weigert sections, in which each fiber is rendered in a code color, matched in opposite page to sections stained to demonstrate the neural cell bodies printed in blue to simulate the appearance of Nissl stain. This simultaneous presentation of the illustrations would enable the student to grasp and visualize the complex anatomical details of this important part of the brain. The text is brief and the quality of the illustrations confirm the artistry of the author.

J. Bebin, M.D.,
Henry Ford Hospital, Detroit.

Natural Selection in Human Populations. Edited by *D. F. Roberts* and *G. A. Harrison*. Symposia of the Society for the Study of Human Biology, vol. 2. (New York: Pergamon Press, 1960, pp. 76. $3.00.)

A most stimulating symposium of the action of natural selection, mainly genetic, on human populations. Professor L. S. Penrose writes on "Natural Selection in Man: Some Basic Problems," Dr. A. R. G. Owen gives a most interesting account of new "Mathematical Models

for Selection," Dr. C. A. Clarke writes on "The Relative Fitness of Human Mutant Genes," Dr. P. M. Sheppard on "Natural Selection and Some Polymorphic Characters in Man," Professor Th. Dobzhansky on "Selection of Gene Systems in Natural Populations," and Dr. E. H. Ashton on the "Rate of Change in Primate Evolution."

The variability of man in all his varieties, once a fertile field for conjecture, is a problem which is now yielding to the investigative and analytic skills of a host of gifted workers. The present volume represents a short and highly readable account of the work that has been and is being done in this important field.

ASHLEY MONTAGU, PH.D.,
Princeton, N. J.

THE HOMOSEXUAL IN AMERICA. By *Donald W. Cory*. (New York: Castle Books, 1960, pp. 334. $6.00.)

After living a quarter of a century as a homosexual, the author presents his reflections on the homosexual in America. The topics discussed are sociology, psychology, patterns of behaviour, culture, types of adjustment and outlook in their relation to homosexuality. Appendices contain extracts from statutes dealing with homosexual offenses, and an extensive non-medical bibliography.

The author advertises his book as "Subjective Approach." It is really autobiographical and a plea for greater tolerance of the homosexual. It contains little that is not known to psychiatrists. Its purpose is disclosed in "this book was addressed to all the gay people in America."

GEORGE W. HENRY, M.D.,
Greenwich, Conn.

ETIOLOGY OF SCHIZOPHRENIA. By *G. U. Malis*. (Government Publications of Medical Literature (Medgiz), Moscow, 1959, pp. 224, price 8.40 rubles (Russian).)

In the past generation we have seen so many dragons slain by the St. George's bearing the emblem of Aesculapius that we are led to believe that all our medical ills will yield to the sharpened spears of the scientist. We have seen consumption proven to result from the baccillus of Koch, malaria to be caused not by the miasma of the swamp but by the organism of Laveran, what was formerly a sort of mania (dementia paralytica) to result from the spirochete of Schaudinn. Since the birth of microbiology, there have been repeated attempts to marshal evidence that schizophrenia is due to a toxin, infection, or metabolic dysfunction. Among such endeavors have been Papez with his intracellular vibrios, more recently Heath and Company with their taraxein. Yet schizophrenia remains the Erlkönig of the psychiatric world, for it has never been accepted in spite of these myriad efforts that there is a specific toxin or a specific histology responsible for the mental symptoms.

Had we not suffered so many frustrations in the past in following the will-o'-the-wisp of schizophrenic etiology, this logical exposition of Professor Malis[3] would convince us that at the basis of schizophrenia are toxic substances probably arising from a virus infection. The 7 chapters of this interesting book describe the characteristics of schizophrenic blood; the effect of this blood on the growth of tadpoles; the effect on the isolated heart of the frog; the toxic substances obtained from schizophrenic blood; the phytotoxic properties; the origin of these properties and their infectious nature; the virus factor in the pathogenesis of schizophrenia. The bibliography contains about 200 Russian references and upwards of 150 non-Russian. The experiments, most of which have been carried out by Malis in the past decade or so, are reported factually along with their controls, and although there is wide variation between the effects from different groups of schizophrenics, the difference between controls and patients is often very impressive. The language is in a clear Russian style.

If one finds himself transported by enthusiasm with these Russian experiments, he should as an antidote read the critical evaluation of Kety in *Science*, June 5 and 12, 1959.

W. HORSLEY GANTT, M.D.,
Baltimore, Md.

IN MEMORIAM

WILLIAM GORDON LENNOX

1884-1960

Dr. Lennox was born in Colorado Springs and always had a love of the west; in later years he spent many vacations in Texas where he was chairman of the board of the Elsinore Cattle Company of Fort Stockton. His early interest, however, was in medical missionary work and to this end he applied in 1909 (after graduation from Colorado College) to the Boston University School of Theology. He was denied admission because of his deficiency in Greek and Hebrew! He then turned to Harvard Medical School where he received the M.D. degree *cum laude* in 1913. While at Harvard he married Emma Buchtel (daughter of the Chancellor of Denver University and one-time governor of Colorado). Two daughters were born; one of them is now Mrs. H. B. Jansson of Maryland; the other is a doctor of medicine, Margaret Lennox-Buchthal of Denmark, who assisted in the writing of *Epilepsy and Related Disorders.*

After three years of hospital work, mostly at the Massachusetts General, Dr. Lennox went to Peking. The first year was spent in learning to speak Chinese and the next three years in the newly organized Rockefeller Medical School and hospital—four stimulating and satisfying years. In 1921 he wrote a thesis at the University of Denver on "A Study of the Health of Missionary Children" and received a Master of Arts degree. He then moved to Boston and began the fulltime task, in the Department of Neuropathology at Harvard, of trying to find out something about the origin and the treatment of epilepsy. This search continued for 33 years in association with various collaborators—at first with Stanley Cobb, H. G. Wolff and Hallowell Davis, but most productively with Dr. and Mrs. F. A. Gibbs. This trio worked as a unit for 11 years until 1945. Of the 241 medical publications that bear the name of Lennox, 28 were in collaboration with one or both of the Gibbs. Throughout 14 years there was continuous support of the research by the Rockefeller Foundation.

Dr. Lennox was a member of many professional societies, and president of the Boston Society of Psychiatry and Neurology, of the Association for Research in Nervous and Mental Diseases, and for 14 years president of the International League Against Epilepsy.

Teaching appointments were in the medical departments in the Peking Union Medical School and Harvard Medical School, where he became Associate Professor of Neurology. Hospital assignments were successively at the Massachusetts General, Peter Bent Brigham, Boston City, Boston Psychopathic Hospital and lastly the Children's Medical Center as Chief of the Seizure Division.

No physician has more successfully dedicated himself to the study of one disease than has Dr. Lennox. It was characteristic of him to be thorough, courageous and persistent. First he did 5 years of spade work in the library and clinic bringing out (with S. Cobb) his first monograph "Epilepsy" in 1928. Then he moved on to more original and exciting fields. First he took up the study of cerebral circulation, and then in 1934 he saw the promise of electroencephalography and began work with Hallowell Davis. With the help of the new techniques of EEG the whole field of research in epilepsy moved ahead rapidly. Collaborating with Gibbs and many other colleagues, important contributions were made in therapy, genetics, etiology and social work. In 25 years the treatment of the epileptic patient and the understanding of his problems were miraculously improved.

Dr. Lennox was president of the Association for Research in Nervous and Mental Disease in 1946. Hundreds of letters came in congratulating him and sending financial aid to this work. At the December meeting

Wilder Penfield truly said : "This is a spontaneous, enthusiastic tribute from epileptics and from members of his own profession ; a tribute to a physician who is a scientist, a scholar, an historian and organizer ; a man, above all, whose unfailing kindliness has endeared him to his fellow man, to his colleagues and to the sufferers in his chosen field."

Stanley Cobb, M.D.

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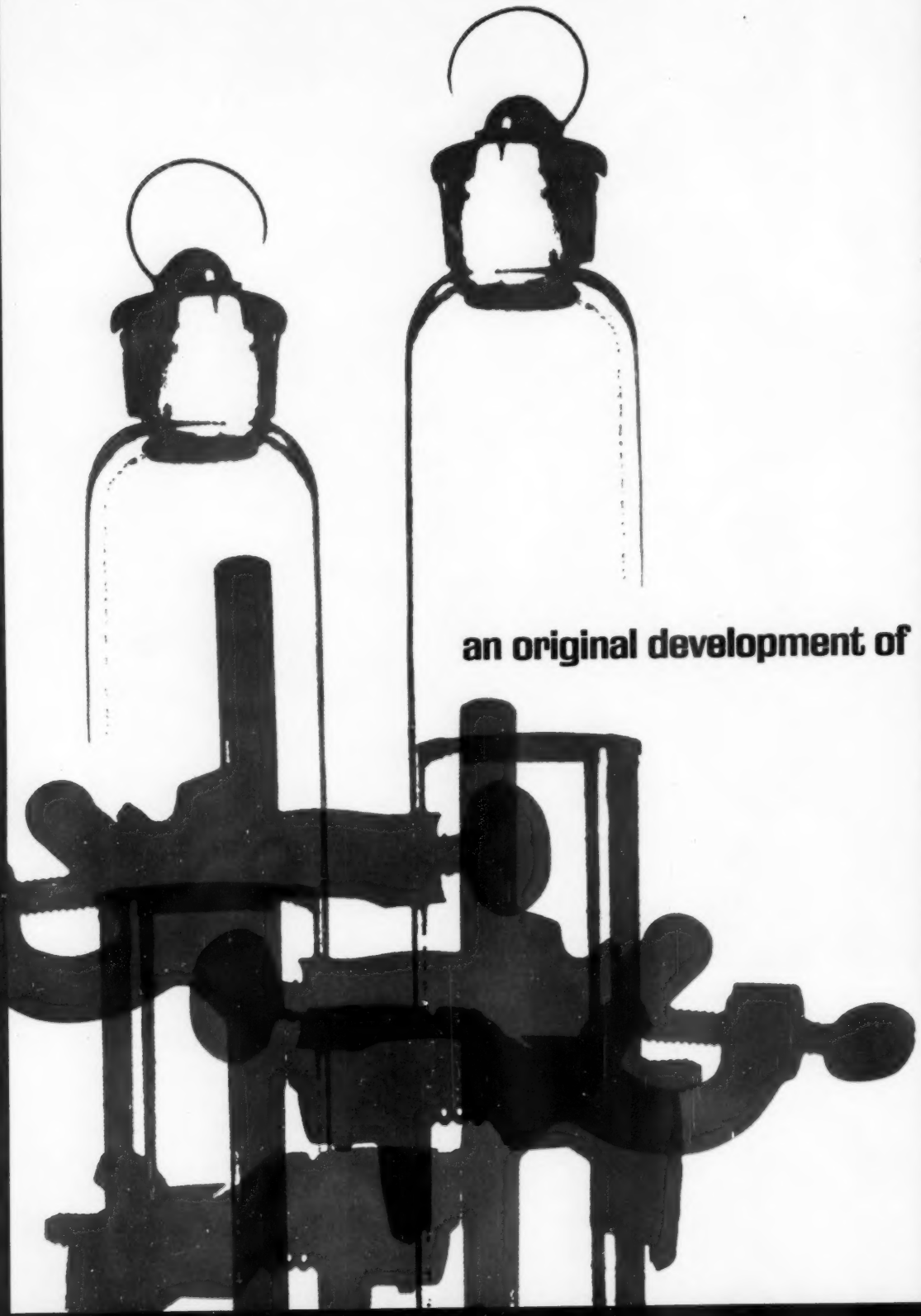

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Published reports on Librium: 1. T. H. Harris, *Dis. Nerv. System*, *21*:(Suppl.), 3, 1960. 2. L. O. Randall, *ibid.*, p. 7. 3. J. M. Tobin, I. F. Bird and D. E. Boyle, *ibid.*, p. 11. 4. H. A. Bowes, *ibid.*, p. 20. 5. J. Kinross-Wright, I. M. Cohen and J. A. Knight, *ibid.*, p. 23. 6. H. H. Farb, *ibid.*, p. 27. 7. C. Breitner, *ibid.*, p. 31. 8. I. M. Cohen, Discussant, *ibid.*, p. 35. 9. G. A. Constant, *ibid.*, p. 37. 10. L. J. Thomas, *ibid.*, p. 40. 11. R. C. V. Robinson, *ibid.*, p. 43. 12. S. C. Kaim and I. N. Rosenstein, *ibid.*, p. 46. 13. H. E. Ticktin and J. D. Schultz, *ibid.*, p. 49. 14. J. N. Sussex, *ibid.*, p. 53. 15. I. N. Rosenstein, *ibid.*, p. 57. 16. D. C. English, *Curr. Therap. Res.*, *2*:88, 1960. 17. T. H. Harris, *J.A.M.A.*, *172*:1162, 1960. 18. G. L. Usdin, *J. Louisiana M. Soc.*, *112*:142, 1960. 19. I. N. Rosenstein and C. W. Silverblatt, paper read at Pan American Medical Association, 35th Anniversary Congress, Mexico City, Mexico, May 2-11, 1960. 20. K. Rickels, *ibid.* 21. N. Toll, *Dis. Nerv. System*, *21*:264, 1960.

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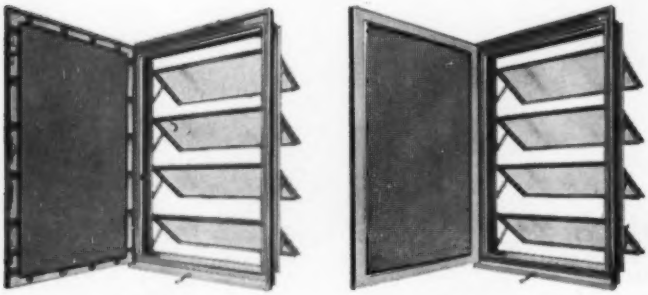

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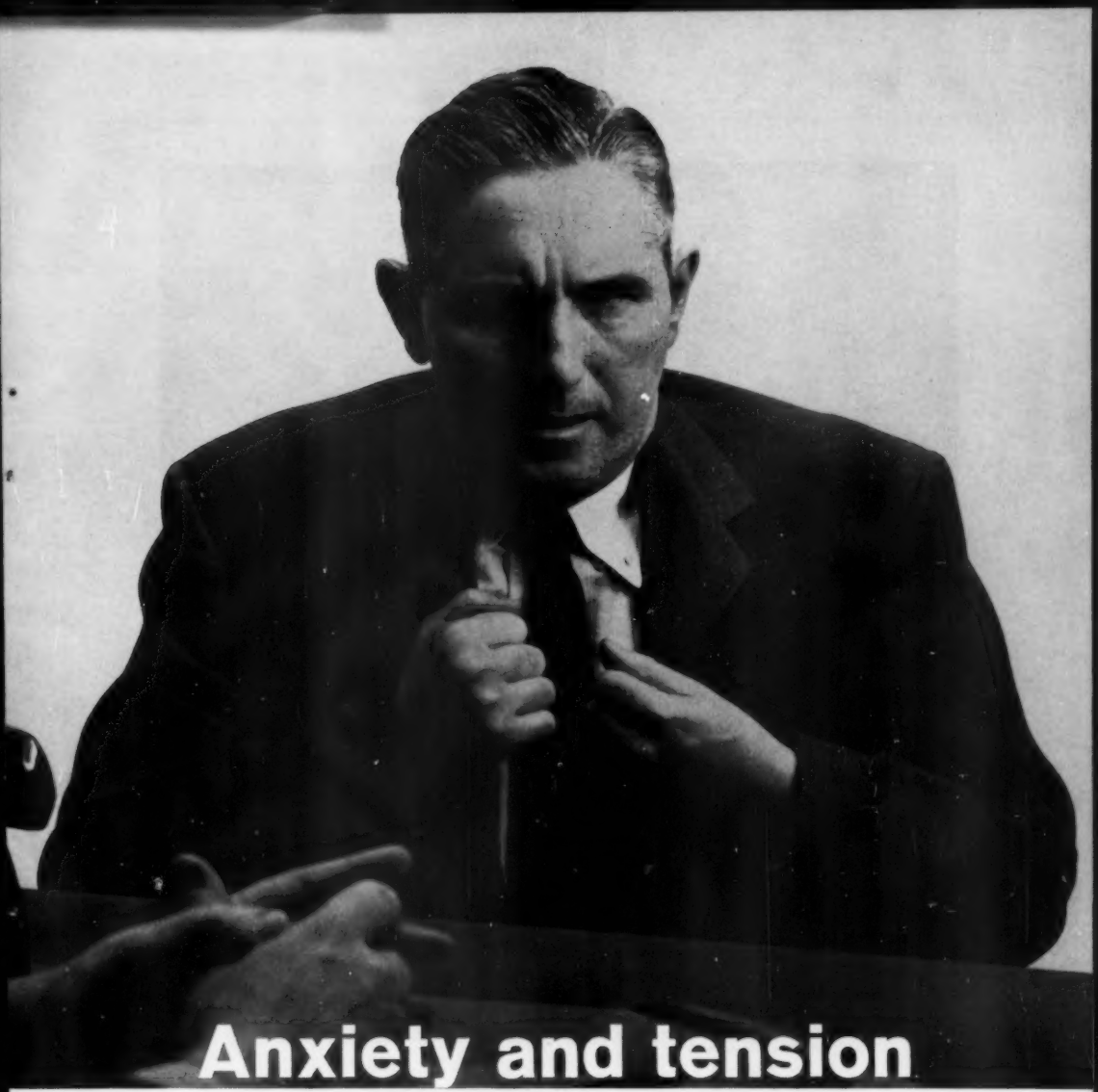

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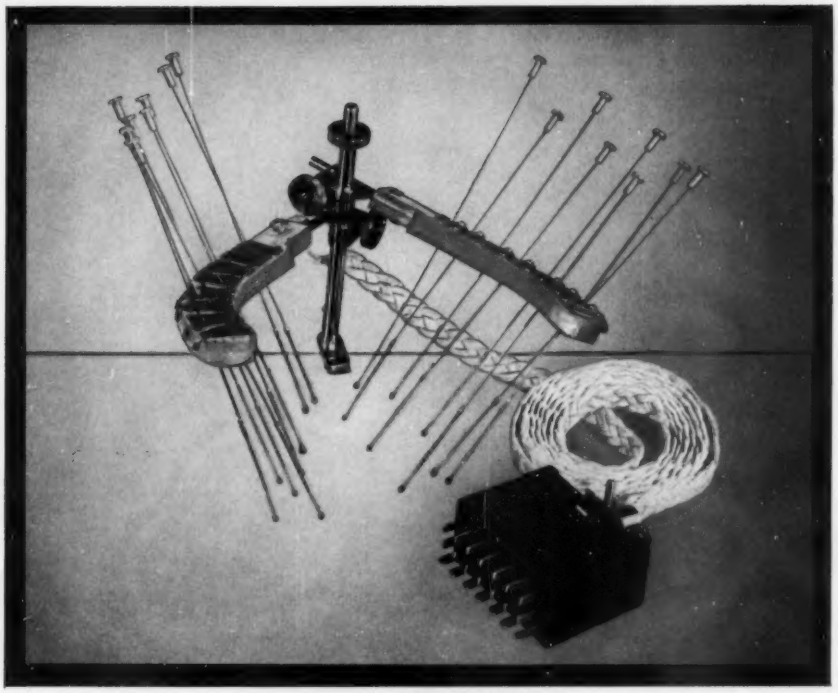

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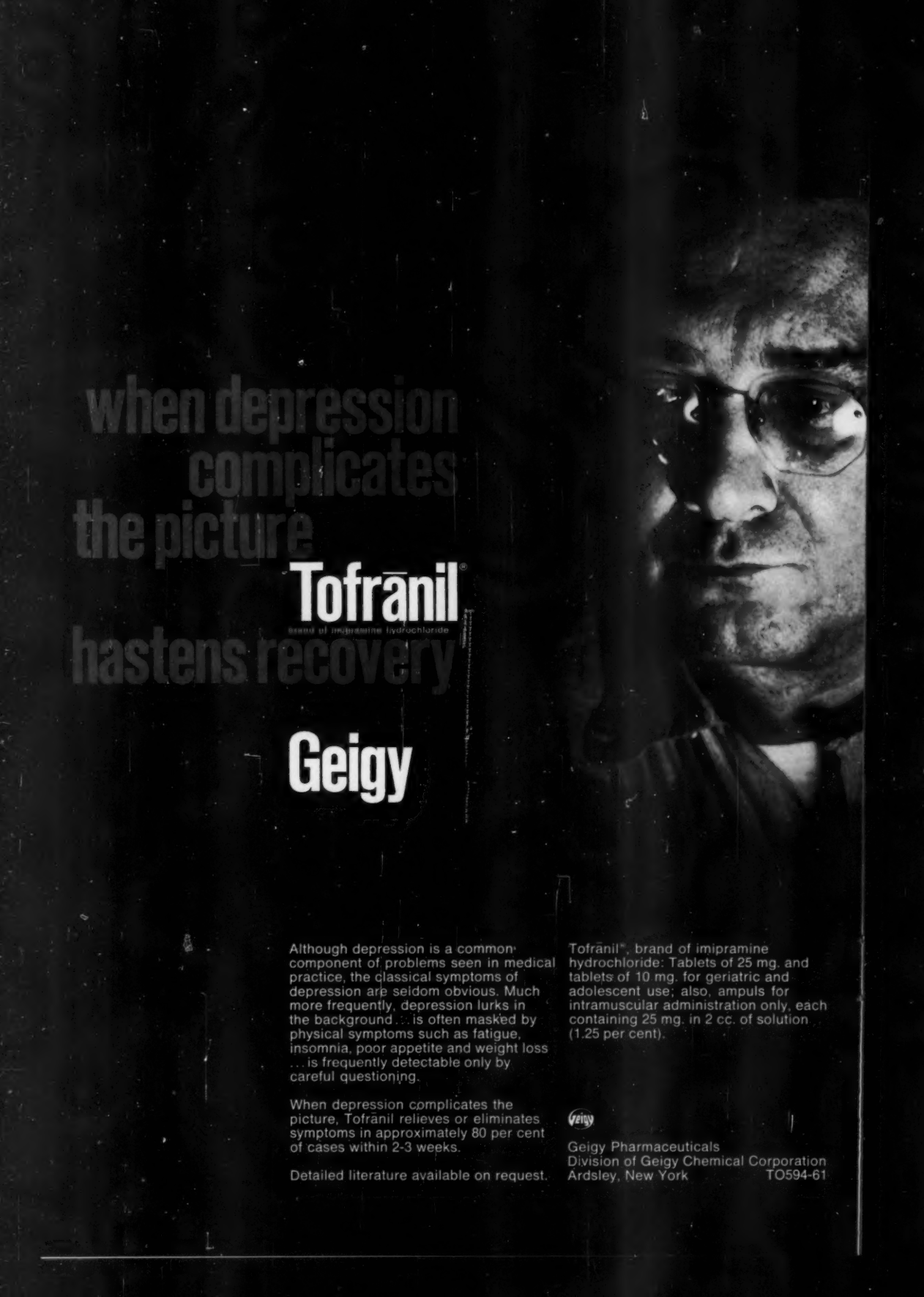

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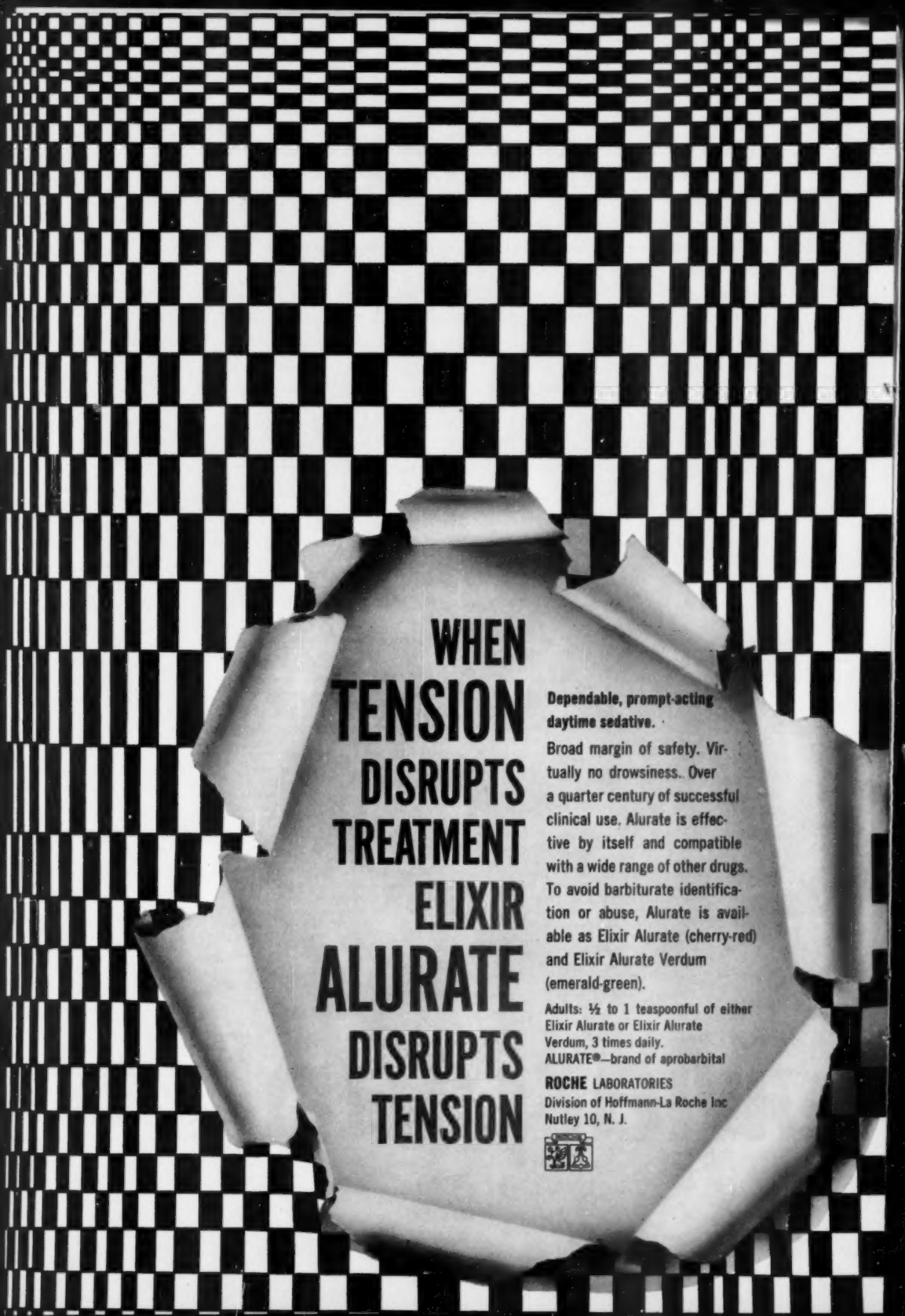
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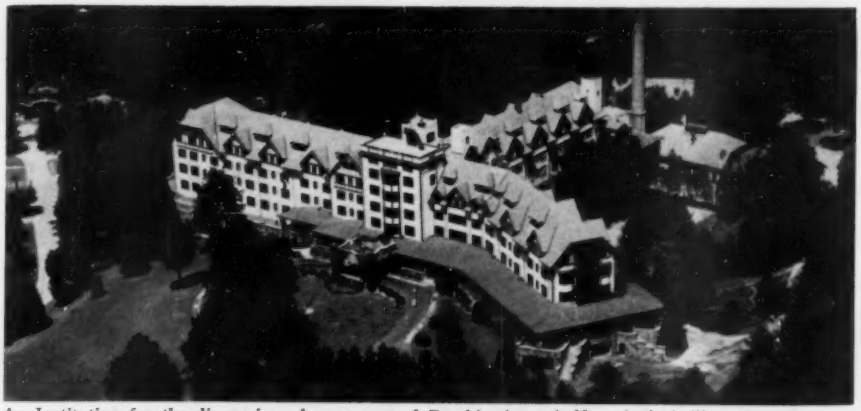

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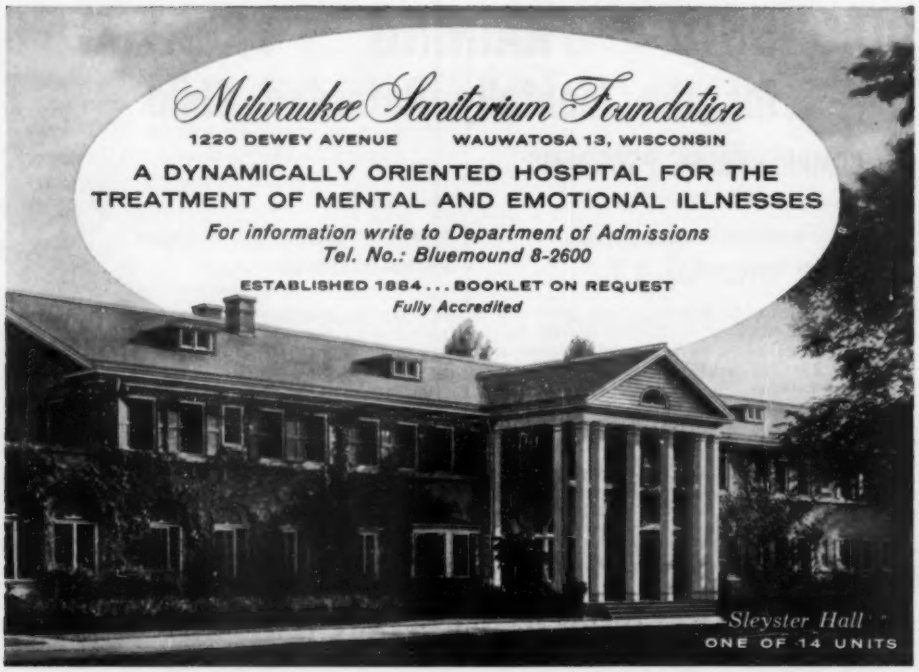
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Comments from the literature:

"... method of choice."

Havens, L. L.: Dis. Nerv. System *19*:1 (Jan.) 1958.

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Robie, T. R.: J. M. Soc. New Jersey *52*:82 (Feb.) 1955.

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